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Railway Age

ANNUAL STATISTICAL AND OUTLOOK NUMBER

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January 1, 1944

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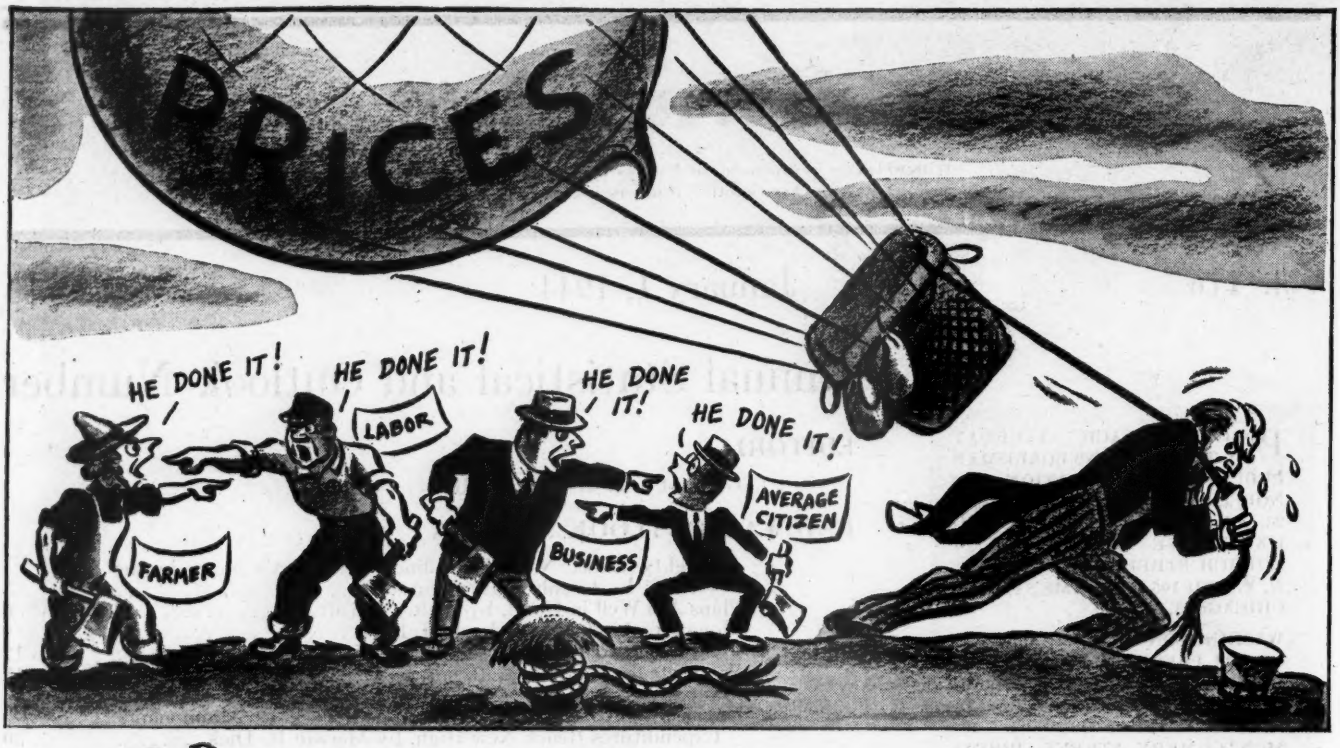

Never mind "who done it"—pitch in and help get it down!

THIS IS YOUR UNCLE SAM talking—but I'm going to talk to you like a DUTCH uncle, to keep all of us from going broke.

Ever since the Axis hauled off and hit us when we weren't looking, prices have been nudging upwards. Not rising awfully fast, but RISING.

Most folks, having an average share of common sense, know rising prices are BAD for them and BAD for the country. So there's been a lot of finger pointing and hollering for the OTHER FELLOW to do something—QUICK.

The government's been yelled at, too. "DOGGONNIT," folks have said, "WHY doesn't the government keep prices down?"

Well, the government's done a lot. That's what price ceilings and wage controls are for—to keep prices down. Rationing helps, too.

But let me tell you this—we're *never* going to keep prices down just by leaning on the government and yelling for the OTHER FELLOW to mend his ways.

We've ALL got to help—EVERY LAST ONE OF US.

Sit down for a minute and think things over. Why are most people making more money today? It's because of the SAME cussed war that's killing and maiming some of the finest young folks this country ever produced.

So if anyone uses his extra money to buy things he's in no particular need of . . . if he bids against his neighbor for stuff that's hard to get and pushes prices up . . . well, sir, he's a WAR PROFITEER. That's an ugly name—but there's just no other name for it.

Now, if I know Americans, we're not going to do that kind of thing, once we've got our FACTS straight.

All right, then. Here are the seven rules we've got to follow as GOSPEL from now until this war is over. Not some of them—ALL of them. Not some of us—ALL OF US, farmers, businessmen, laborers, white-collar workers!

Buy only what you need. A patch on your pants is a badge of honor these days.

Keep your OWN prices DOWN. Don't ask higher prices—for your own labor, your own services, or goods you sell. Resist all pressure to force YOUR prices up!

Never pay a penny more than the ceiling price for ANYTHING. Don't buy rationed goods without giving up the right amount of coupons.

Pay your taxes willingly, no matter how stiff they get. This war's got to be paid for and *taxes are the cheapest way to do it.*

Pay off your old debts. Don't make any new ones.

Start a savings account and make regular deposits. Buy and keep up life insurance.

Buy War Bonds and hold on to them. Buy them with dimes and dollars it HURTS like blazes to do without.

Start making these sacrifices now—keep them up for the duration—and this country of ours will be sitting pretty after the war . . . *and so will you.*

Uncle Sam

KEEP PRICES DOWN!

Use it up • Wear it out
Make it do • Or do without

This advertisement, prepared by the War Advertising Council, is contributed by this magazine in co-operation with the Magazine Publishers of America.

The Year at a Glance

TAKEN OVER BY UNCLE SAM: The biggest event in the biggest year the railroads have ever seen waited until the year had almost gasped its last before occurring. We refer, of course, to the assumption of control of the nation's carriers by the Army, at the President's order on December 27—to forestall a strike, if possible, or, if not, to mitigate its dangerous consequences to the nation's war effort. This historic development occurred while this large issue was being put to press at our printer's in Philadelphia—and our report is a last-minute job. Nonetheless, the record is complete for all happenings up to the morning of December 29, when we had to lay off writing and let the presses start to roll—because of the extraordinary size of this issue. Our report will be found on page 123 et seq.

●

TO AVOID DISASTER: There was dramatic movement in the railway world on the evening of December 27 and throughout the day on the 28th—a complete record of which will be found in our account, page 123. The President decided, with three unions with strike orders still unrescinded, that it would be dangerous to wait until the December 30 deadline before taking firm steps to build an effective backfire against such a disaster—serious in time of peace, but utterly ruinous in time of war. The Army, Mr. Roosevelt revealed at his December 27 press conference, was all ready for this emergency as early as December 24, with detailed plans as to how and where to move in—and who was to do the moving. History has been made on a mass production scale in the last fortnight, with a constantly greater crescendo. There are participators in it who have played ignoble parts—which in due course will be plain to all people. But now there is barely time to record these acts—their evaluation will have to come later.

●

PROSPECTIVE OUTLAYS: An article on page 6 herein tells in greater detail than has ever before been made public the activities of the Railroad Committee for the Study of Transportation—that earnest, hard-working, able group of railroaders which is thoroughly exploring every avenue for possible improvement of railroad operations—in technology, in method, in service, in economy. The work of this committee, and similar endeavor by individual railroads, will give the carriers more factual information than they have ever before possessed as to *ways* of improving their functioning—and the accumulating reserves, as outlined in our leading editorial and in the article on page 9, should provide them the *means* for large and carefully-selected expenditures, which their inquiry has shown will be most productive.

●

TRAFFIC'S ALL-TIME HIGH: Freight movement in 1943 is estimated in this issue's leading editorial to have been 725 billion ton-miles, 14 per cent above 1942. Passenger-miles were about 85 billion—60 per cent ahead of 1942. Last year's freight traffic exceeded that of 1929 by two-thirds; and that of 1918 by 80 per cent. Last year's passenger traffic was twice as great as in war-time 1918, and almost three times as large as in prosperous 1929.

●

NET EARNINGS SHRINK: Despite gross revenues of $9 billions (as compared to $7½ billions in 1942), the railroads in 1943 earned less net railway operating income than in 1942—reason: higher taxes, higher wages, reduced freight rates. Taxes were $1,850 millions—$651 millions more than in 1942; and almost nine times as large as in 1918, during the last war. And railroads are being taxed on maintenance expenditures which they should be making, and can't because of shortages of materials and labor. In other words, railroad plant is deteriorating, and the railroads are forced to pay high taxes on this deterioration, as if it were income.

●

EASTMAN'S MESSAGE: O. D. T. Director in a message to *Railway Age* readers on page 5 herein, commends all parties to 1943's superior transportation performance for their contribution thereto. The O. D. T. regime, he says, has been "an experiment in co-operation"—and so far the experiment has succeeded; but he warns that the supreme test lies ahead, which must be met if the record, so far maintained, is to persist to the day of final victory.

●

MEAGER DIVIDENDS: Of about $880 millions of net income, which could have been paid out in dividends, the railroads actually paid out only a little over $200 millions. This may be compared to 1929, when $490 millions in dividends were paid from net income totaling $897 millions. In the three years 1941-43 the railroads paid out only about $600 millions in dividends on a total net income of $2,300 millions—thus accumulating $1,700 millions for reducing indebtedness and for additions and betterments (present and in prospect). An article on page 9 supplements the editorial by further detailed figures on the recent spectacular improvement in the carriers' assets.

●

MATERIALS AND LABOR: Articles on pages 17 and 24 examine in detail, respectively, the current situation of the railroads with regard to the two most vital and "short" ingredients of railroad service. The specific items that are in most acute demand—and the occupations and localities where the lack of labor pinches the hardest—are explored in these two informative diagnoses.

●

SIGNAL PROGRESS: Movement of above-capacity war loads, without attendant increase in physical plant, has been secured in countless strategic spots by the installation of the appropriate product of the signal-maker's art. The suggestive results of some of these applications are reviewed in an article on page 44, while details of the year's progress in this department are tabulated on page 99.

THANK YOU, MR. STIMSON: Secretary Stimson's radio address on December 28, explaining the reasons for the Army's taking over the railroads, is as forceful a statement of the indispensability of efficient railroad transportation to a modern industrial state as any ever issuing from an informed official source; and as glowing a tribute to railroad management. Excerpts from this speech appear in our news pages, and make a perfect antidote for the recent malignant mis-statements of Vice-President Wallace, who wants to spread prosperity throughout all backward parts of the world by building for them, at our expense, all forms of transportation *except* railroads.

●

DR. PARMELEE'S REPORT: The comprehensive statistical review of the year's operations in all aspects—external as well as internal—by the Director of the Bureau of Railway Economics, appears on page 60. This regular and sought-after summary is of especial interest and importance this year, because the events reflected therein are railroading, magnified beyond anything anyone could have expected a year or so ago; some figures which, it may be, will not soon be touched again.

●

M. OF W. ANOMALY: Construction activities in 1943 did not, in total, decline much in 1943 under 1942—but they were mainly projects required to service specific war movement, rather than to the amelioration of railroad operating conditions, required for the most efficient movement of present traffic. Maintenance of way expenditures, paradoxically, mounted to record totals—while way and structures, for lack of certain items, experienced further deterioration.

●

EQUIPMENT: The railroads in 1943, at length, came pretty close to finding out the last inch of movement and the last pound of hauling which could be exacted from their rolling stock, at the present state of the art. Nevertheless, expedients will have to be discovered (or effective methods now localized made general) to extract still more carrying capacity out of what is available. The specific situation as regards equipment capacity is surveyed in articles on pages 36, 39 and 41—and the unspectacular progress made in additions to the supply is tabulated on pages 88, 93 and 94.

●

WHY ORDERS AREN'T BIGGER: The question has been asked, why railroads are not placing larger orders than they are for things which they need. The answer our editorial suggests is that, the increase in the war load having diminished, the carriers are beginning to think more and more about *what they will need to handle post-war traffic;* and the answer to that need is *improved* equipment and materials. It is improvement, rather than mere quantity, which the railroads will be seeking for their post-war needs—and, the editorial suggests that such products as are improved sufficiently to meet the requirements will suffer no embarrassment for lack of demand.

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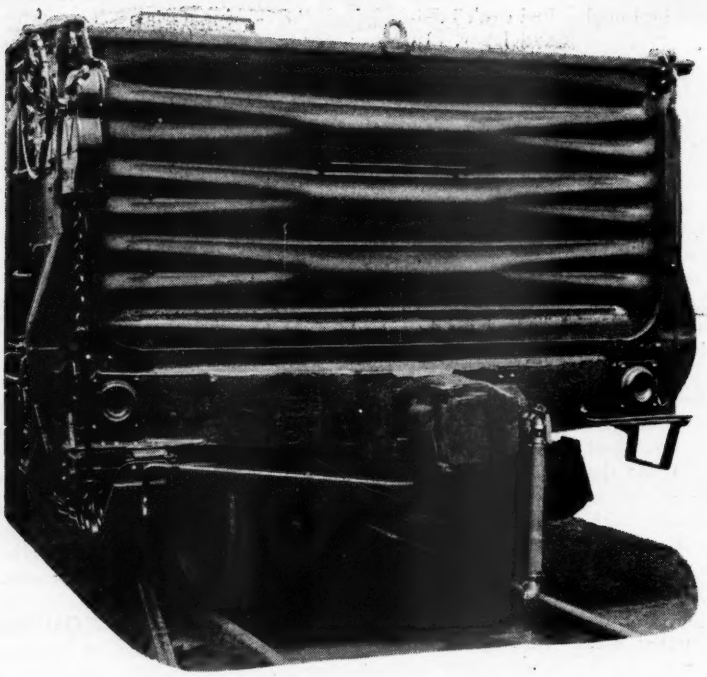

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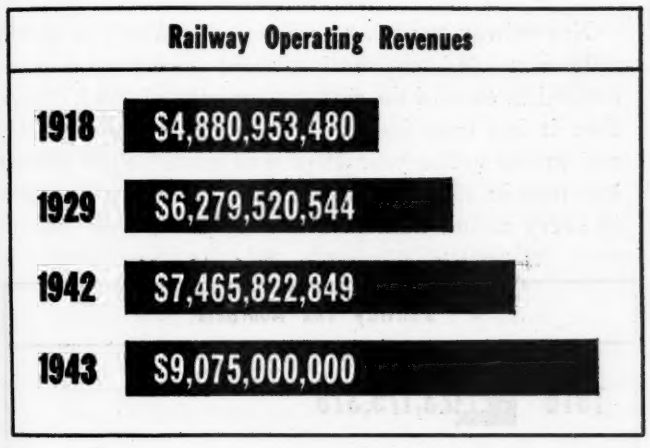
RAILWAY AGE

Greatest Year in Railroad History

The leading editorial in *Railway Age's* "Annual Statistical and Outlook Number" of January 2, 1943, was headed: "Incredible 1942—what of 1943?" As 1942 in retrospect seemed incredible, so 1943 in retrospect seems impossible. It was the greatest year in the history of America railroading since the first rail was laid. If the war in Europe ends in 1944, it may be long before we shall again see records of service equalling those of 1943 made by the railroads as a whole.



Seizure by Government

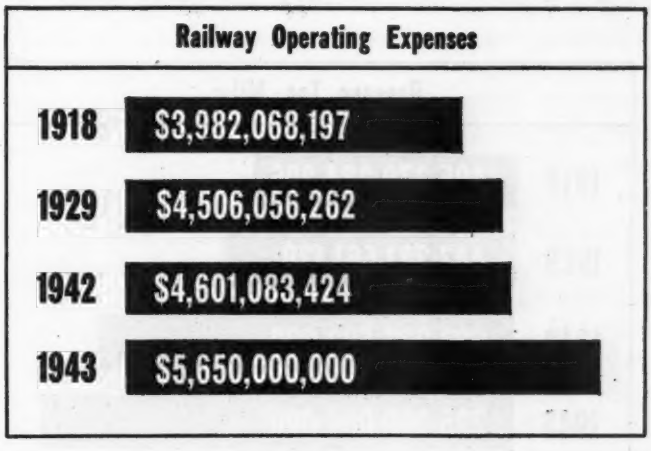
The most sensational development of the year came on the evening of December 27 when the government, in an order issued by President Roosevelt, took over possession and operation of the railroads. This action was caused by a threatened strike on December 30 due to prolonged disputes between the government and twenty railway labor unions over wages. The fifteen non-operating unions and two of the operating unions—Brotherhood of Locomotive Engineers and Brotherhood of Railroad Trainmen—had agreed to withdraw their strike orders and let President Roosevelt settle the disputes with them, which he had done; but the railroads were seized because the Brotherhood of Railroad Firemen & Enginemen, the Order of Railway Conductors, and the Switchmen's Union had not yet rescinded their strike orders.

The railroads were turned over to operation by Secretary of War Stimson—i.e., by the Army—with instructions to "permit the management of carriers . . . to continue their respective managerial functions to the maximum degree possible"; "to provide protection for all persons employed or seeking employment"; and to terminate government control and operation "as soon" as they "are no longer required to prevent interruption of transportation service." It is plain, therefore, that government operation has not been adopted "for the duration" as it was in 1917, and that it is intended fully to restore private management and operation as soon as the threat or effects of a strike have been removed.

All-Time High for Traffic

The figures for 1943 used herein are, of course, estimates. These estimates are, however, based on actual results, usually for ten months, and on the trends prevailing since the middle of the year. The final settlements of the wage disputes may prove some of the estimates rather wide of the mark; but probably they will prove to be fairly accurate.

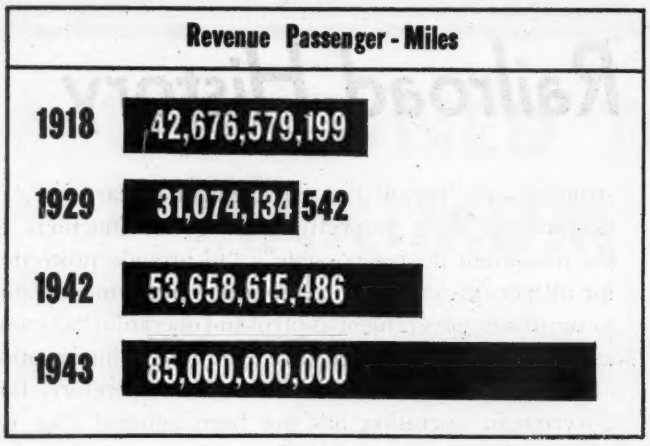
Freight traffic handled in 1943 was about 725 billion ton-miles—80 per cent greater than under government operation in the war year 1918; two-thirds greater than in 1929; 14 per cent greater than in 1942; and about equal to the traffic handled in the three depression years 1932, 1933 and 1934 combined.



Passenger traffic handled was about 85 billion passenger-miles—twice as large as in the war year 1918;

not far from three times as large as in the prosperous year 1929; and almost as large as it totaled in the five depression years 1931-1935, inclusive.

Gross earnings never before had reached $7½ billion. In 1943 they exceeded $9 billion—being almost 50 per cent more than in 1929—in spite of lower rates,

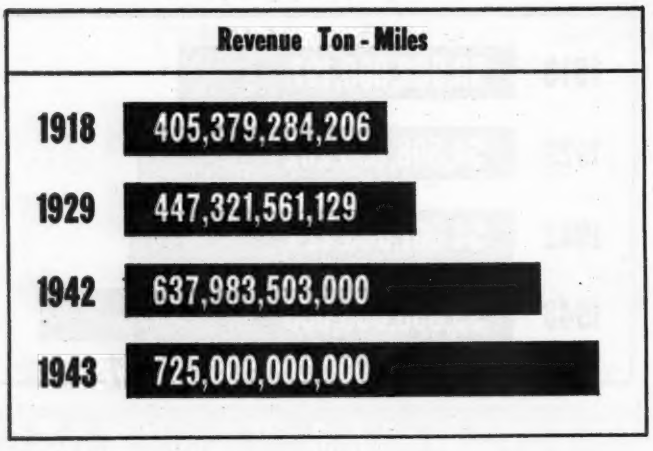


both freight and passenger—and almost as great as in the three depression years 1932-35 combined.

Total operating expenses of $5 billion $650 million were the largest in history, but only 62.3 per cent of gross earnings, as compared with 81.6 per cent under government operation in 1918 and 72 per cent in 1929. The ratio of expenses to earnings was, however, slightly higher than the 61.6 per cent it reached in 1942, the reasons being reductions of rates and advances in wages.

Taxes Nine Times Greater Than in 1918

Nevertheless, net revenue from operation—the difference between gross earnings and operating expenses—greatly exceeded any previous year's figure. It was $3,425 million, as compared with $2,865 million in 1942; $1,773 million in 1929; and $899 million in

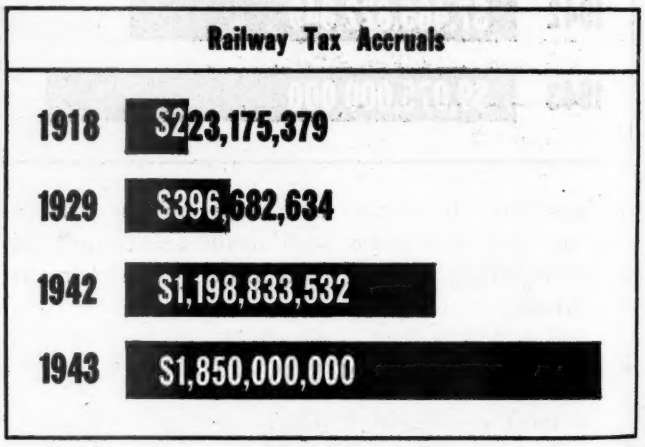


1918—twice as great as in 1929 and almost *four times* as great as under government operation in 1918.

But, like so many corporations and individuals, the railways were being run principally to help the government carry on the war. Their taxes of $1,850 million took more than half of their net earnings from operation; were $651 million more than in 1942; almost five times as large as in 1929; and almost nine times as large as in 1918 when the government was operating them. The federal government made sure when it was operating the railways twenty-five years ago that the taxes it had to pay from their earnings were not increased. During the present war, when they have remained under private management, it has extracted every dollar it could. The government's restrictions on manpower and materials, by causing under-maintenance, have artificially increased net earnings; but the taxing authorities have insisted on basing taxes on the net income *reported*. Hence, because of government policies, the railways have not only had to see their properties suffer deterioration, but to pay taxes on the deterioration!

Net Operating Income Large, But Declining

Net railway operating income (after taxes) of $1,485 million in 1942 was the largest in history; and it increased in each of the first five months of 1943. Since then it has been less in every month than in 1942; and in the entire year 1943 was almost $100 million less than in 1942. In fact, since June it has been less in every month than in 1929. In the second half of



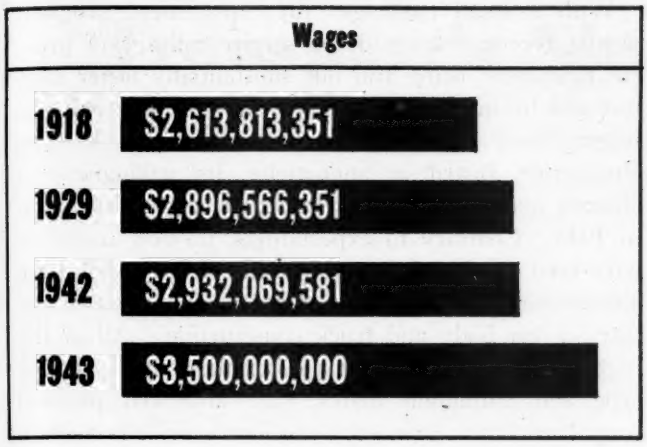
1929 it was $712 million; in the second half of 1943 only $674 million. Its recent decline has been due to increases in taxes and operating expenses—the latter principally increased charges to payrolls made in expectation of having finally to pay retroactively the advances in wages recommended months ago by government boards, but still toward the end of the year in dispute between government authorities and the labor unions.

Net Income Large, but Not for Stockholders

Net income (after fixed charges and taxes, and available for dividends) is estimated to have been $880 million—slightly less than in 1929 or 1942, but larger than in any other previous year. In 1929 net income was $897 million and dividends $490 million; in 1942

net income was $902 million and dividends $202 million; in 1943, with net income about $880 million, dividends were about $215 million.

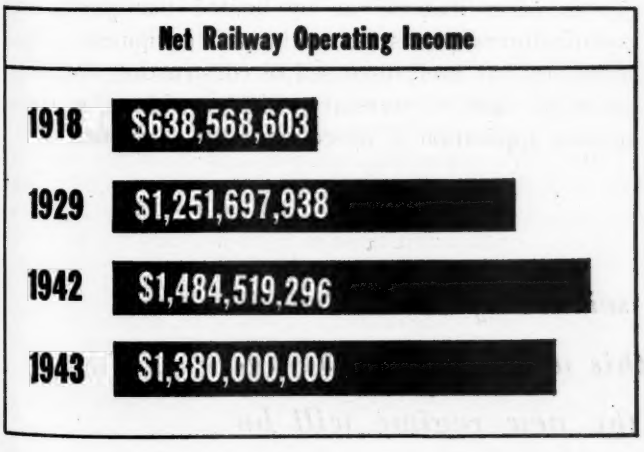
In the three years 1941-1943, inclusive, the railways earned about $2,300 million net income and paid only about $600 million dividends—thus reserving about $1,700 million of earnings belonging to their stockholders. Some of this has been used to reduce indebtedness; all of it can be used—in addition to net income made in future and not paid out in dividends—in reducing indebtedness and in future rehabilitation and improvement of properties. Such uses of earnings are *supposed* to benefit the stockholders; but the stockholders never do get the benefit unless and until they get it in dividends.



The $1,700 million excess of net income over dividends paid in the three years ending with 1943 was 70 per cent as large as the $2,430 million excess of net income earned over dividends paid in the ten years ending with 1930.

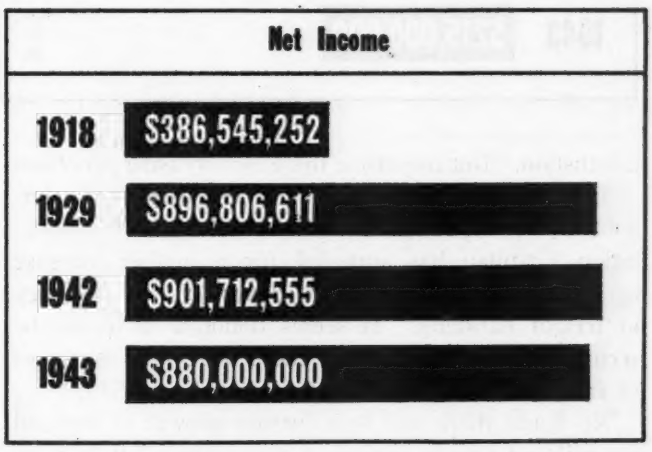
Purchases Large—Prospective Purchases Larger

The large amount thus reserved from net income will provide purchasing power when more equipment and materials can be bought than have been available under government restrictions within the last three years. Prior to these government restrictions, purchases of equipment and materials usually exceeded net operating income (before taxes) by 5 to 10 per cent. In the thirteen years 1929-1941, inclusive, of both prosperity and depression--mostly depression—annual net operating income averaged $638 million and annual purchases of equipment and materials about $689 million, a difference of 8 per cent. Because of government restrictions purchases within the last two years have been much less than net operating income. In 1942 net operating income was $1,485 million, and in 1943 about $1,380 million. According to *Railway Age's* estimates, equipment and materials purchased from and actually delivered by manufacturers were about $1,147 million in 1942 and $1,137 million in 1943—in the two years about $580 million less than net operating income, and, according to previous experience, about $750 million less than they would have been without government restrictions. Thus, during the war years the railways are accumulating buying power which they may reasonably be expected to use in future years *in addition* to the buying power afforded by their earnings in future years.



Railways Want Improved Equipment

Expenditures for equipment and materials actually delivered in 1941, before government restrictions became so severe, were about $1,196 million—somewhat larger than in either 1942 or 1943. The decline was in equipment. Expenditures for materials increased from $813 million in 1941 to $835 million in 1942 and to $889 million in 1943. On the other hand, the estimated cost of equipment built and delivered declined from $383 million in 1941 to $312 million in 1942 and to $248 million in 1943.

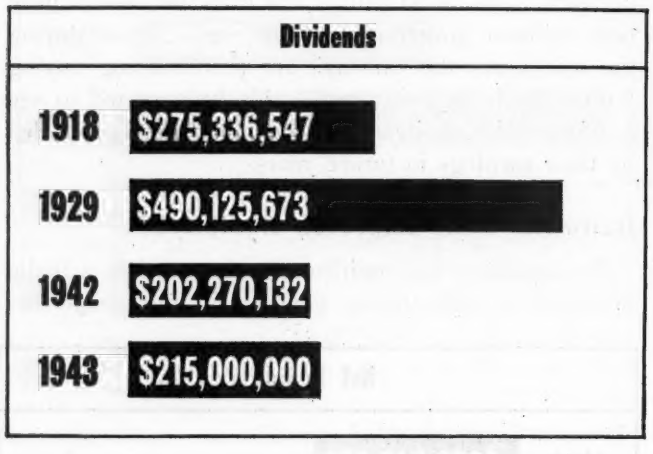


Questions are being raised as to why the railways are not placing larger orders for some kinds of equipment and materials that recently have become increasingly available. The answer is, that they are beginning to think less about what they need to handle the war traffic, and more about what they will need to handle traffic and effect economies and improve service after the war. Manufacturers who are prepared to provide *improved* equipment and materials will be able to sell them as soon as they can deliver them. The largest railway market in all history for *improvements* ap-

parently soon will be available. The railways will for some years have the buying power; they will need to do a huge amount of buying; but because of prospective post-war conditions, especially post-war competition, they feel as never before the need to buy with discrimination, skill and foresight. "Reciprocity" in traffic and purchases and other such considerations will be less influential, and what will improve service and reduce costs more influential, than ever before.

Traffic in 1944

Prospective increases in traffic in 1944 are smaller than in the two preceding war years. Industry's capacity for expanding total production seems nearing



exhaustion. But meantime there is increasing diversion of freight to the railways from trucks because the latter are wearing out. Director of Defense Transportation Eastman has appealed for a further increase by railways and shippers of 10 per cent in efficiency in freight handling. It seems doubtful if it can be secured even if needed; for there were real shortages of freight cars throughout the last half of 1943.

No doubt there will be a further growth of demand for railroad transportation of passengers; but in most parts of the country the railways have been unable to meet recent demands, especially for accommodations in sleeping cars.

There is prospect of considerable relaxation in 1944 of government restrictions on materials both for building and maintaining equipment and for maintaining and expanding permanent structures. But, because of shortage of manpower and for other reasons, it will be extremely difficult to increase railway service enough if traffic demands continue to grow.

With a small passenger car replacement program during recent years and the service mileage of present equipment being run out substantially faster than restored by means of shopping for general repairs, it is gratifying to note the recent action of the War Production Board in announcing its willingness to allocate materials for new passenger car construction in 1944. Contrary to expectations, no new materials have been developed during the war period which have spectacular advantages over those available before the war for car body and truck construction. All of the high-tensile steels of both the stainless and low-alloy type and aluminum alloys with improved physical properties, which gave such excellent service in modern passenger cars built prior to Pearl Harbor, will be available, however, for cars constructed in 1944 and the Association of American Railroads and the Office of Defense Transportation are now making studies on which to base their recommendations regarding the amount and types of equipment which should be built.

Passenger Cars—Maybe, Not Till Fall

The only "fly in the ointment" is that, from present indications, basic materials for the passenger car construction program will not be rolled and allocated for this particular work much before the middle of July which means that no considerable number of new cars can be built and actually delivered to the railroads before the last quarter of the year. Many materials other than the basic steels and strong aluminum alloys mentioned enter into car construction and another tight spot is air-conditioning equipment in which electric motors, for example, will apparently not be available much before the fourth quarter, this delay being caused not so much by a shortage of copper or other material as by limited man-power in manufacturers' plants for making this equipment. The possibility has been discussed of constructing the new passenger cars, if necessary, with provision for subsequent application of air-conditioning equipment.

A report of the Army's seizure of the railroads and the events leading to this action—with the arrangements under which the new regime will be conducted—will be found on page 123 in this issue.

A Mighty Effort Now Will Clinch Transport's Share in the Victory

By Joseph B. Eastman

Director, Office of Defense Transportation

THIS is the third beginning-of-the-year message that, as Director of the Office of Defense Transportation, I have addressed to readers of the *Railway Age*. In both my previous statements I have been able to congratulate railroad men on a past year of praiseworthy accomplishment, but I have also had to warn them on both occasions of still more difficult problems ahead. I shall not depart from that formula in my present statement—but rather repeat what I have said before with the greatest emphasis I am able to give.

I NOTE a disposition on the part of some transportation people to conclude, as far as freight traffic is concerned, that we are "over the hill." The available facts, as known to me, afford no support to such comforting assumption; and, even if the prevailing evidence did suggest that conclusion, it would be a dangerous opinion to indulge. Our arms have been successful to a gratifying degree in every theater of military and naval operations during the past year—but this success has come from extraordinary efforts all along the line, born of an appreciation of the deadly peril to our national life in the aims and prowess of our Axis enemies. If we persuade ourselves that we are coasting to victory, and consequently shut off steam, or even fail to put on more steam, the result will be—perhaps not to lose the war for us, but certainly to prolong it, with a consequent needless sacrifice of lives and property. A delusion that the peak has been passed in freight transportation can be just as dangerous to the transportation part of the war effort as a similar belief that victory is at hand would be to the war effort as a whole.

MY staff and I are convinced, from all ascertainable facts, not only that there is no justification for the comforting thought that we are "over the hill" in war transportation, but that the most critical months lie immediately ahead of us. We are asking the railroads and the shippers, by a general tightening up of all slack and elimination of all waste motion, to increase by another 10 per cent the efficiency of their utilization of available equipment. In view of the remarkable performance to date of both carriers and shippers, this may seem an unappreciative counsel of perfection. Yet I have no doubt that it will be possible to advance far toward this goal—if the best methods in use anywhere are adopted everywhere; and if both shippers and carriers will be foresighted in their practices, sacrificing their own convenience to make the job easier for the "other fellow." Advantages to individual shippers, carriers, or consignees, which involve waste in transportation, must be put aside while we concentrate on the vastly greater end, more profitable to all of us—individually as well as collectively—an early and victorious end to the awful waste of war.

THERE is particular danger that the railroads, looking forward to the day when normal competition will be resumed and feeling that this day may be near, will begin to slip in co-operation, having an eye to future strategy and tactics. I can understand why there might be such a tendency, but I believe the railroads will realize, upon reflection, that they can make no better preparation for the future than undivided concentration on the matter in hand, which is to win the war in the shortest possible time. The record they have made so far in this effort will stand them in good stead for the future, if they can, as I am confident they can, carry it through to the end at the same high level and without blemish.

THE outlook for truck transportation is one which should not be overlooked by railroad and traffic men in their calculations of the demands which will be made on the railroads in the coming year. Because of mounting shortage of truck tires, as well as inadequate replacements of worn-out trucks, the coming year may well, I fear, bring an acute under-supply in this vital arm of civilian transportation. The more truck transportation is impaired, the more diversion of traffic there will be to the railroads and, unfortunately, most of it will be short-haul traffic, which is least adapted to efficient railroad movement.

IN passenger transportation by rail there is no sign of any respite from the steadily mounting increases. We must redouble our efforts to persuade the public to abstain from unnecessary travel. Some skepticism has been expressed of the efficacy of such appeals as these—in view of the continued increase in traffic; yet we can be assured that, but for this kind of publicity, the volume we should have had to deal with would have been even greater than it has been.

THE Office of Defense Transportation was an experiment in the field of co-operation. It has grave responsibilities for the conduct of domestic transportation in the successful prosecution of the war. In my judgment, I am fortunate in my staff. They have labored intelligently, unremittingly, and effectively to sustain the burden of those responsibilities, with excellent help from the Interstate Commerce Commission. But when all is said and done, the major share of the transportation duties falls to the lot of the carriers, their managements and employees, and the public which they serve. So far the experiment in co-operation has worked. I hope, and believe, that the same statement can truthfully be made on the day of final victory.

Plans Are Well in Hand

A. A. R. program in forefront of post-war research being sponsored by private enterprise—Air cleared in June when Congress abolished National Resources Planning Board

By Walter J. Taft
Washington Editor

The railroads, with their Committee for the Study of Transportation, under the chairmanship of Judge Robert V. Fletcher, are inquiring exhaustively and objectively into every phase of the railroads' situation.

One well-staffed investigation is going into all phases of the economic environment which will face the railroads at the war's end—not only what business conditions in general will be, but prospects for every important commodity which moves by rail and every geographic area; what service and rates will be necessary for the roads to retain and increase their movement of that commodity or in that area.

Similar exhaustive inquiry is being pursued in technological developments, in personnel practices, in trends in competing agencies of transportation, in statistics and accounts, in public relations, in taxation, in legislation, in finance, in operating practices, in passenger transportation.

Inquiry on subjects similar to those studied in behalf of the entire industry by the Committee for the Study of Transportation is being carried on, in their own territories, by many individual railways.

Never before have the railways so thoroughly and so unanimously and so hopefully looked scientifically at their problems, with courage and determination to proceed scientifically to their comprehensive solution.

PLANNING by the railroads and American business generally for the conditions which will face them in the post-war period came closer to earth during the past year when private enterprise found itself in a position to grab the ball from the New Dealers. The "break" came last June when Congress abolished the National Resources Planning Board, directing that its files be delivered to the National Archives, and that its functions be not transferred to any other agency.

Not that the New Dealers no longer have ideas, since planning for others will ever remain their habit. Thus many federal departments are still working on post-war schemes, particularly in the field of public works, including highway, waterway, and air transport projects. But the loss of N. R. P. B., which President Roosevelt liked to call "the planning arm of my Executive Office," was a crushing blow, from which the Administration's more grandiose planners may never recover—if private enterprise is able to develop soundly-based business plans out of which will come high-level production and employment in the post-war period.

Railroad Program in Forefront

Fortunately, private enterprise was ready for the "break" when it came. Already well under way were several research programs—some seeking light on the general post-war economic outlook, and others undertaking more specifically to develop plans on an individual-company or individual-industry basis. In the forefront among the latter is the railroad industry's research program being carried out by the Railroad Committee for the Study of Transportation.

This committee, sponsored by the Association of American Railroads and operating under the chairmanship of A. A. R. Vice-President R. V. Fletcher, is comprised of railroad officers and executives of the Railway Express Agency and the Pullman Company. It is pursuing a comprehensive program of studies embracing every phase of railroading and developments which may affect railroading. The line-up of its work is convincing evidence that the industry should be well on top of the situation when it comes to knowing about the best way to do things in the post-war era.

The committee was organized with 15 subcommittees about 18 months ago, and its work is now about half done. It expects to have most of it completed in another year. No general essays will be issued; for the plan is to stick to basic studies with reports of practical value and application. Each report will be issued separately as it is ready for release, and later on all reports will be brought together in a single volume pursuing a consistent method throughout.

Probably the most important reports to come out of the program will be those of the Subcommittee on Economic Study. This group has undertaken to determine what kind of a world economically the railroads will have to live in after the war, and how much and what kind of traffic they will have. The latter phase of the subcommittee's work is under the direction of Loyd J. Kiernan, former railroad statistician of the Equitable Life Assurance Society, and, prior to that, a member of the Illinois Central's traffic department staff.

Far-Reaching Commodity Studies

This inquiry contemplates commodity studies which are perhaps more far-reaching in scope, but nevertheless more precise, than any before attempted. They amount to an undertaking to prepare detailed estimates of post-

war traffic, region by region, and industry by industry. An effort is being made to cover the whole field of commodities, and offices from which industry is being contacted have been opened in New York, Chicago, Washington, D. C., and Philadelphia, Pa. The broader statistical and economic studies of this subcommittee are under the supervision of Dr. Julius H. Parmelee, director of the Bureau of Railway Economics.

Meantime, five reports have already come from other subcommittees—one from the Subcommittee on Engineering and Mechanical Research, two from the Subcommittee on Labor and Personnel, and two from the Subcommittee on Accounting and Statistics. The first found ready acceptance at the hands of the A. A. R. board of directors. Adopting its recommendation, the board has authorized the establishment within the Association of a Department of Technical Research under the control of a director of technical reseach.

Members of the Subcommittee on Engineering and Mechanical Research are: Chairman A. E. Perlman, chief engineer, Denver & Rio Grande Western; H. R. Clarke, chief engineer, Chicago, Burlington & Quincy; W. D. Faucette, chief engineer, Seaboard Air Line; V. R. Hawthorne, executive vice-chairman, Mechanical Division, A. A. R.; C. E. Smith, vice-president, New York, New Haven & Hartford; W. S. Lacher, secretary, Engineering Division, A. A. R.; F. W. Hankins, assistant vice-president, Pennsylvania; P. W. Kiefer, chief engineer, motive power and rolling stock, New York Central; K. F. Nystrom, mechanical assistant to chief operating officer, Chicago, Milwaukee, St. Paul & Pacific.

Personnel Problems in Reconversion Period

First of the two reports from the Subcommittee on Labor and Personnel was the "Partial and Progress Report on Railroad Personnel Problems," which was reviewed in the *Railway Age* of November 27, 1943, page 871. It considers railroad personnel problems which will be encountered in the period of industrial reconversion to peacetime production, the return to railroad service of military personnel, and the permanent personnel needs of the carriers.

It undertakes to set down in specific fashion some of the things management should consider now, to the end that it may be prepared to deal effectively and intelligently with the personnel situation when the need for action comes.

Recommendations include calls for continuance of wartime employee training programs, arrangements for retraining returning military personnel in new and improved methods, and definitely worked out plans for retaining desirable temporary employees who might otherwise be bumped out by the ex-service men. With respect to the contribution which the railroad industry can make "toward a movement to promote the use of purchasing power after the war," the report suggests that each road might well "make a study of work projects, not absolutely essential, perhaps, to the operation of the road, but nevertheless desirable in the interest of economy and efficiency of operation, but which might be undertaken for the purpose of relieving unemployment."

This subcommittee's second report is the "Special Report on Public Relations Training for Railroad Employees," which was issued in November. It is based upon a survey of practices followed and results secured by 47 railroads, the Pullman Company, the Railway Express Agency, and three major air lines. The practices studied are described briefly, while the report also includes the subcommittee's observations on the purpose and value of special training of railroad employees in better relations with the public whom they serve.

Recommends Campaign to Promote Courtesy

In its conclusions and recommendations, the subcommittee expresses its belief that "a program to promote courtesy in the railroad industry would meet with the same success as did the program for 'Safety First.'" It is under no illusions that such a campaign for "considerate behavior toward others" could be made 100 per cent effective overnight. Campaigns for accident prevention, for fuel economy, or to prevent waste "have never brought 100 per cent response, yet all have brought results that fully justify their undertaking." Hence the specific recommendation that the railroads and associated companies "intensify and enlarge upon existing plans, inaugurate such programs when not already established, to the end that all possible efforts be made to provide and promote considerate and courteous relations of employees between themselves and toward the public."

Members of the Subcommittee on Labor and Personnel are: Chairman L. W. Horning, vice-president, New York Central; A. M. Hartung, vice-president, Railway Express Agency; G. A. Kelly, vice-president, Pullman Company; D. P. Loomis, executive director, Association of Western Railways; L. L. Morton, assistant vice-president, Louisville & Nashville; J. B. Parrish, vice-president, Chesapeake & Ohio; E. B. Perry, manager of personnel, New York, New Haven & Hartford; C. R. Young, manager of personnel, Illinois Central.

Issued last July, the first report to come from the Subcommitte on Accounting and Statistics records recent progress on accounting and statistical methods and outlines desirable objectives which might be achieved through research into other similar matters. Listed in the former connection is the combination U. S. Government bill of lading, shipping order, and waybill forms, all five parts of which are prepared by government departments or contractors with substantial savings in clerical effort.

Among the subjects listed for further research is the simplified unit bill of lading and waybill form for commercial use. Widespread acceptance of this by large shippers, the report predicts, would bring benefits to all concerned. The form has already won from the National Industrial Traffic League a recommendation that it be used by members wherever practicable; but considerable shipper resistance remains. Thus the report suggests a careful review of shipper objections with a view to making the form more appealing.

Suggested Research on Accounting

Other research called for in this report would go further into such subjects as the simplification and consolidation of division bases for apportioning interline freight revenues; the division of interline passenger revenues; accounting for land-grant deductions on government traffic; co-ordinated operation of teletypewriters and card-punch equipment for the remote reproduction of statistics and other information; use of microphotography in record keeping; accounting machines for passenger ticket offices; and dining car audit control with cash registers.

The second report issued by the Subcommittee on Accounting and Statistics is a criticism of the cost data developed by Ford K. Edwards of the Interstate Commerce Commission's Bureau of Transport Economics and Statistics and introduced in evidence in the No. 28300 investigation of the class rate structure. The report, dated October 9, 1943, was prepared by J. P.

McDonald, general statistician, Atchison, Topeka & Santa Fe, a member of the subcommittee. Other members are Chairman G. T. Carmichael, vice-president and comptroller, New York, New Haven & Hartford, and J. J. Ekin, vice-president and comptroller, Baltimore & Ohio.

Other reports nearing completion at the year's end include one by the Subcommittee on Air Transportation and another by the Subcommittee on Public Relations. The former is described as "hardly a final report," since the aviation situation is subject to such rapid change. But it was nevertheless expected to be a "very complete" report, and is scheduled for release by the first of February. The forthcoming report of the Subcommittee on Public Relations will be a final report, which was expected to be issued early this month.

The Subcommittee on Highway Transportation is at work on an ambitious program which contemplates investigation into every phase of motor transport. Like assignments in their respective fields have been taken on by the subcommittees on Water Transportation and Pipe Line Transportation. The Subcommittee on Taxation has one section studying federal taxes and another at work on state and local taxes. It is determining the extent to which the railroads have been overtaxed as compared with other industries; while transport legislation which should be enacted will be the subject of the Subcommittee on Legislation's report.

Studies of Finance, Operations, and Traffic

The subcommittees on Finance and Consolidation are delving into those matters, the former studying the financial structure of the railroads, prospective post-war capital needs, and what financial policies should be adopted. Finally, there are the subcommittees on Operating Practices and Traffic, the latter functioning in three sections which have under way separate studies of carload freight, l. c. l., and passenger business. The full membership of Judge Fletcher's general committee was given in the article entitled "Railroads Prepare for Post-War Era," which appeared in the previous Annual Statistical and Outlook Number, the issue of January 2, 1943, page 23. Since that time three members have been added—F. H. Baird, general passenger traffic manager, New York Central, G. W. Getty, general passenger agent, Pennsylvania, and W. W. Hale, vice-president, Southern Pacific. The staff employed by the various subcommittees totals about 30 persons.

* *

Meanwhile, individual-company research has become widespread throughout the railroad industry during the past couple of years. As Judge Fletcher put it in a recent address, "practically every railroad company of any size has organized competent research groups, who are working diligently on every problem that has come to the surface and upon many questions that are still submerged."

As indicated at the outset, other transport planning may be expected to come from government agencies engaged in promoting highways, waterways, and air transport. Then there is the National Planning Association which describes itself as "a privately financed organization devoted to planning by Americans in agriculture, business, labor, and government." Back in 1941, this Association published "The Crisis in Transportation," predicting for the fall of that year a freight car shortage of such magnitude that a breakdown of rail transportation was implied.

B. I. R. Not Entirely Despaired Of

Recently, it has published "The Outlook for Domestic Air Transport" and "The Outlook for the Railroad Industry," which are rewrites by Ernest W. Williams, Jr., of studies he had made while on the staff of the defunct National Resources Planning Board. The latter was generally well received in railroad circles, however, one authoritative appraisal saying that it gave evidence of "objectivity and an appreciation of the public interest in continued efficient railroad service."

Finally, there are the studies which may be expected from the Board of Investigation and Research created by the Transportation Act of 1940, which still has another nine months of life. B. I. R., of course, lost considerable prestige when it permitted southern congressmen to divert it from its statutory assignments to the interterritorial freight rate investigation; and when former Chairman Nelson Lee Smith left to accept a Presidential appointment to the Federal Power Commission. Nevertheless, informed railroad men have not despaired of the board's producing valuable reports on such subjects as the impact of taxes on carriers, public aids to water transportation, and perhaps some highway transport studies.

* *

American-Built Locomotives for War Service Overseas—Shown in a N. Y. C. Yard at an Eastern Seaport

Money for Modernizing

The Outlook Is Promising

By J. G. Lyne

Assistant to Editor

The railroads on September 30 had more than $1 billion in cash, after deducting their liability for taxes. Barring inflationary wages and prices, they should come to the war's end with sufficient funds to *initiate* a comprehensive program of modernizing their facilities, the more successfully to cope with their competition.

Whether modernization can persist successfully after its inception, of course, depends ultimately upon re-establishment of railroad credit, but this should improve if the railroads demonstrate their ability to hold onto competitive traffic. Such competitive strength will be fostered by the initial modernization—carefully gaged to public preferences—which the carriers can finance from cash resources.

Given reasonable freedom from political depredations, and moderation in taxpayers' largesse for socialized transportation facilities, the railroads may expect to have the funds to implement the most comprehensive planning for the industry's improvement which has ever been undertaken.

THE task of adjusting the railroads to the necessities of a post-war period of intense competition resolves itself into a question of (1) ways and (2) means. Some of the more important *ways* in which the railroads may remodel their plant and methods are under intensive examination, as is reported in the article immediately preceding, entitled "Plans Are Well in Hand." It is the purpose of this discussion to explore the *means*, i.e., the funds, which will likely be available for the job to be done, if the privately-financed railroads are to hold their own in rivalry with other agencies whose facilities are largely provided by government "investment." There are three possible sources for new capital funds for the railroads—(1) the sale of new securities, (2) the reinvestment of funds derived from charges to depreciation, and (3) the investment in the property of part of net income.

Investment Market No Resource—Yet

Railroad security prices, generally speaking, have not experienced a recovery of sufficient proportions to make the sale of securities (except those covering equipment purchases), as yet, a dependable source of new investment funds for most carriers (the trend of security prices being examined in more detail in the financial article in the statistical section of this issue). The investment market not being a resource available to most carriers (except for equipment acquisition), the inquiry turns to the other possible sources—depreciation funds and investments from income. Both these latter depend immediately upon the excess of revenues over expenses (as, of course, in the long run, does the availability of the security market); specifically, they derive their strength or weakness from the position of the railroads' current assets. If there are substantial earnings remaining after payment of all expenses, taxes, and fixed charges—if maturing obligations are limited in amount and dividend disbursements are modest—then the railroads' cash position will be strong. The roads will be in a position to re-invest, if they choose, the equivalent of all the charges made to the depreciation accounts; plus all net income not paid out in dividends. This is the situation in which the railroads now find themselves and which—barring run-away wages and prices—should obtain at the termination of the war.

Cash Now on Hand

The railroads now have on hand more cash (including temporary cash investments) than at any previous time in history. The total was $2,685 millions at the end of September, 1943, as compared to $1,436 millions at the end of September, 1942—an increase of $1,249 millions or 87 per cent. Accrued tax liability, to be sure, was $1,614 millions at the end of September, 1943, as compared to $839 millions 12 months earlier—but, if the tax liability is deducted from the cash on the two dates mentioned, 1943 still shows $474 millions more

Table I—Selected Balance Sheet Items, Class I Line-Haul Railways

Year	Cash and Temporary Cash Investments (000)	Total Current Assets (000)	Total Current Liabilities (000)	Excess of Current Assets over Current Liabilities (000)	Total Long-Term Debt (000)	Total Corporate Surplus (000)
1929*..	$677,955	$1,717,953	$1,200,984	$516,969	$11,138,121	$5,029,171
1930*..	592,071	1,510,975	1,162,170	348,805	11,174,816	4,577,730
1931...	419,510	1,213,350	1,147,239	66,111	11,153,678	4,395,508
1932...	379,136	1,063,271	1,130,731	– 67,460	11,247,777	4,094,531
1933...	394,117	1,034,560	1,261,382	– 226,822	11,112,055	3,900,883
1934...	380,212	1,058,326	1,471,321	– 412,995	11,041,472	3,714,302
1935...	439,403	1,086,467	1,670,767	– 584,300	10,821,788	3,507,220
1936...	578,343	1,292,421	1,885,574	– 593,153	10,452,266	3,349,889
1937...	392,486	1,143,990	1,937,830	– 793,840	10,686,814	3,126,391
1938...	480,550	1,120,968	2,243,961	–1,122,993	10,558,723	2,739,742
1939...	578,359	1,292,705	2,555,903	–1,263,198	10,352,646	2,563,879
1940...	680,400	1,442,142	697,200†	744,942	11,288,311†	2,474,249
1941...	904,600	1,914,544	1,115,320‡	799,224	11,186,063	2,666,625
1942...	1,736,933	3,065,093	1,806,030	1,259,063	10,879,476	3,167,986
1943...	2,685,244	4,308,692	2,520,491	1,788,201	(*1943 totals are Sept. 30*)	

* Switching & Terminal Companies Included.

† In 1940 and thereafter long-term debt in default is included in long-term debt. In years prior thereto it is included in current liabilities. Likewise in 1940 and thereafter defaulted interest is removed from current liabilities to deferred liabilitis.

‡ Tax liability included in 1941 and thereafter.

Table II—One Year's Improvement in Cash and Current Assets of Individual Large Steam Railroads

	Cash & Temporary Cash Investments			Total Current Assets		Total Current Liabilities		Excess of Current Assets over Liabilities		
	End of Sept. 1943	End of Sept. 1942	+Inc. or −Dec. %	End of Sept. 1943	End of Sept. 1942	End of Sept. 1943	End of Sept. 1942	End of Sept. 1943	End of Sept. 1942	+Inc. or −Dec. %
Alton	$5,810,920	$1,861,202	+212	$11,486,970	$6,914,034	$9,907,473	$5,203,349	$1,579,497	$1,710,685	− 8
Atch. Top. & S. F.	155,398,588	69,010,941	+125	228,631,152	133,783,248	166,213,230	86,234,897	62,417,922	47,548,351	+ 31
Atl. Coast Line	49,617,973	29,209,253	+ 70	84,567,511	50,595,153	55,431,175	26,151,555	29,136,336	24,443,598	+ 19
Balto. & Ohio	63,624,044	39,161,118	+ 62	125,991,038	85,018,153	69,921,906	49,489,314	56,069,132	35,528,839	+ 58
Boston & Maine	19,571,808	12,875,657	+ 52	37,219,218	25,714,337	18,655,528	18,088,839	18,563,690	7,625,498	+143
Cent. of Ga.	17,751,986	7,827,003	+127	27,538,003	14,413,818	11,654,738	6,694,215	15,883,265	7,719,603	+106
Cent. of N. J.	7,727,839	11,525,988	− 33	29,205,912	21,081,299	16,593,328	16,259,391*	12,612,584	4,821,908	+162
Ches. & Ohio	62,644,138	51,171,772	+ 22	109,971,716	79,023,074	76,144,034	60,311,028	33,827,682	18,712,046	+ 81
Chi. & E. Ill.	9,088,017	3,917,624	+132	13,394,341	6,774,764	7,336,632	3,143,960	6,057,709	3,630,804	+ 67
Chi. & N. W.	94,120,677	43,166,935	+118	121,318,289	69,673,265	32,257,313	17,026,005	89,061,076	52,647,260	+ 69
Chi. Burl. & Q.	50,964,077	26,947,002	+ 89	83,096,095	52,240,000	52,837,520	29,342,007	30,258,575	22,897,993	+ 32
Chi. Gt. Western	8,064,014	4,064,728	+ 98	11,169,470	6,818,709	7,090,633	4,524,822	4,078,837	2,293,887	+ 78
Chi. Mil. St. P. & P.	107,093,471	38,596,815	+177	141,712,741	71,459,004	48,035,648	23,453,748	93,677,093	48,005,256	+ 95
Chi. R. I. & P.	72,280,988	31,671,173	+128	95,117,128	52,017,233	29,970,759	13,940,878	65,146,369	38,076,355	+ 71
Chi. St. P. M. & O.	10,964,068	3,814,451	+187	14,579,871	6,847,965	5,172,127	3,095,831	9,407,744	3,752,134	+151
Del. & Hudson	14,950,362	9,903,699	+ 51	21,728,165	16,025,461	8,691,412	8,289,691	13,036,753	7,735,770	+ 69
Del. L. & W.	23,028,789	10,429,573	+121	40,909,550	21,994,646	22,971,931	15,104,790	17,937,619	6,889,856	+160
Denver & R. G. W.	22,273,059	6,056,642	+268	33,974,778	15,480,210	19,447,082	10,831,948	14,527,696	4,648,262	+213
Duluth, M. & I. R.	17,625,818	27,934,994	− 37	21,802,380	32,150,847	19,555,824	21,620,990	2,246,556	10,529,857	− 79
El. Joliet & E.	11,473,567	13,025,584	− 12	14,621,207	16,140,220	11,330,949	13,761,702	3,290,258	2,378,518	+ 38
Erie	37,197,107	28,055,848	+ 32	63,949,344	48,333,904	43,713,132	27,030,094	20,236,212	21,303,810	− 5
Grand Trunk W.	1,505,298	1,846,717	− 18	7,339,719	6,671,215	6,080,785	4,207,751	1,258,934	2,463,464	− 49
Gt. Northern	41,912,580	42,125,259	− 1	80,505,292	70,579,157	53,780,801	34,722,324	26,724,491	35,856,833	− 25
Gulf M. & O.	9,667,680	7,024,727	+ 38	15,112,169	11,747,007	9,199,782	6,704,503	5,912,387	5,042,504	+ 17
Ill. Central	158,635,049	36,512,873	+334	86,731,391	64,106,055	57,615,957	38,259,977	29,115,434	25,846,078	+ 13
Yazoo & Miss. Valley	344,486	315,741	+ 9	14,191,478	5,868,348	9,562,489	4,046,730	4,628,989	1,821,618	+154
Lehigh Val.	19,915,381	14,629,378	+ 36	43,451,349	32,695,565	28,846,371	20,221,824	14,604,978	12,473,741	+ 17
Long Island	6,633,392	2,596,792	+155	13,172,982	9,429,625	8,402,622	8,121,064	4,770,360	1,308,561	+265
Louisv. & Nashv.	73,781,679	58,174,576	+ 27	119,364,319	87,336,016	72,033,810	46,256,183	47,330,509	41,079,833	+ 15
Minn. St. P. & S. S. M.	8,109,284	4,323,734	+ 88	15,503,313	11,942,365	4,830,655	4,431,136	10,672,658	7,511,229	+ 42
Mo.-Kan.-Tex.	9,564,497	5,875,227	+ 63	20,190,898	12,523,983	17,248,859	9,844,315	2,942,039	2,679,668	+ 10
Mo. Pac.	116,485,129	51,642,613	+126	150,515,511	81,740,414	53,158,831	20,305,830	97,356,680	61,434,584	+ 58
N. Y. Central	36,454,804	41,777,253	− 13	268,002,240	143,642,600	162,595,664	103,848,097	105,406,576	39,794,503	+165
N. Y. Chi. & St. L.	27,291,790	14,635,523	+ 86	38,429,381	22,694,130	31,106,444	20,840,104	7,322,937	1,584,026	+362
N. Y. N. H. & H.	48,190,314	24,690,342	+ 95	78,072,075	46,983,874	43,183,121	30,729,369	34,888,954	16,254,505	+115
Nor. & West.	110,854,688	29,519,935	+276	83,679,918	52,509,050	55,775,774	45,599,769	27,904,144	6,909,281	+304
Nor. Pacific	53,667,549	29,226,784	+ 84	91,180,892	58,556,018	38,427,349	21,714,331	52,753,543	36,841,687	+ 43
Pennsylvania	220,592,277	136,864,844	+ 61	370,921,574	268,741,866	234,789,288	180,356,914	136,132,286	88,384,952	+ 54
Pere Marquette	14,276,485	9,447,348	+ 51	21,586,615	15,940,047	12,819,301	8,005,142	8,767,314	7,934,905	+ 10
Pitts. & L. Erie	17,213,805	12,587,528	+ 37	22,321,084	17,709,102	13,788,353	12,095,743	8,532,731	5,613,359	+ 52
Reading	19,924,373	17,552,606	+ 14	37,927,364	31,208,599	30,287,949	25,510,825	7,669,415	5,697,774	+ 35
St. L.-San F.	40,071,222	22,752,216	+ 76	54,429,241	35,601,436	16,346,774	8,095,563	38,082,467	27,505,873	+ 38
St. L., S. F. & Tex.	211,450	154,858	+ 37	386,564	429,159	983,159	200,040	−596,595	229,119	−360
St. Louis S. W.	24,167,219	11,965,798	+102	38,991,160	21,799,778	27,563,698	15,255,391	11,427,462	6,544,387	+ 75
Seaboard A. L.	47,968,008	12,066,370	+298	67,784,511	28,811,743	24,278,677	14,322,520	43,505,834	14,489,223	+200
Southern	79,121,106	36,123,919	+119	111,632,091	67,215,719	94,476,890	50,377,305	17,155,201	16,838,414	+ 2
Southern Pacific	150,874,650	65,196,653	+131	262,194,742	140,789,538	145,933,476	62,657,065	116,261,266	78,132,473	+ 49
Texas & Pacific	23,414,833	8,430,215	+178	37,107,684	19,510,504	25,283,698	10,511,901	11,823,986	8,998,603	+ 31
Union Pacific	174,492,964	66,660,604	+162	260,828,563	146,545,220	146,681,292	71,944,625	114,147,271	74,600,595	+ 53
Wabash	25,939,681	14,495,126	+ 79	45,552,559	34,038,843	28,288,319	17,535,133	17,264,240	16,503,710	+ 5

cash than on hand in 1942—an increase of 79 per cent.

Meantime, the reduction in long-term debt steadily proceeds (permanently lightening the burden of annual fixed charges, and diminishing the chances of embarrassment to the cash position which might occur in meeting post-war maturities of such obligations). Exact figures on purchase and retirement by the railroads of long-term debt during 1943 are not yet available—but one of the best-informed authorities in the investment community estimates this total at upwards of $500 millions, exclusive of equipment obligations. Balance sheet figures of line-haul Class I railroads reporting to the Interstate Commerce Commission showed a decline of $409 millions in outstanding long-term debt from the end of 1940 to the end of 1942, and an increase of $62 millions in "funded debt retired through income and surplus."

The corporate surplus account of Class I line-haul railroads, having declined from over $5 billions in 1929, to a low of $2,474 millions in 1940, had recovered to $3,168 millions by the end of 1942.

In the first nine months of 1943 the Class I line-haul railroads earned $697 millions of net income and disbursed only $116 millions, or one-sixth thereof, in dividends. In the entire year 1942 net income exceeded dividend disbursements by $700 millions.

Depreciation charged in the first nine months of 1943, plus amortization of defense projects, totaled $338 millions, compared to $240 millions in the same 1942 period. If depreciation and amortization charges for the entire year exceed those for 1942 in the same ratio as in the first nine months, the total of such charges in 1943 will be $475 millions.

No Allowance for Undermaintenance

In only one particular—but a most important one—do current figures on railway earnings fail to indicate a rapidly improving condition. This element of uncertainty—with figures resulting which do not reflect the true facts—comes from the refusal of the Treasury to permit the carriers to charge under-maintenance (arising from the scarcity of materials and labor) to current operating expenses. While I. C. C. accounting rules permit these charges, the Treasury will not permit them to be deducted, as expenses, in income tax accounting—but insists that such sums be inaccurately included in net income subject to the present high taxes on corporate profits.

Efforts are being made to secure legislative relief from this Treasury policy, which has probably resulted in the carriers' position being shown in their figures at several hundreds of millions of dollars better than it is—a situation which, in being rectified, would result in reductions in taxes greater than those which it would entail in net income.

This one unfavorable factor apart, however, it is evident that (barring extended wage and price inflation) all other circumstances appear to be working to assure

for the railroads, when war-time restrictions on capital improvements are removed, the best position in cash and current assets which they have ever enjoyed as a means of making such improvements.

It remains a fact that investment markets, except for equipment purchases, remain largely closed to most of the railroads—certainly for equity financing. This condition will, of course, persist until investors' confidence is restored—by a peace-time period of reasonable earnings and dividends. Meantime, at least a substantial beginning may be made in reconditioning the railroads to deal with their post-war competition in a manner persuasive to ultimate restoration of investors' confidence, from the strong position in current assets and cash which is now being established.

It will be noted in Table I herewith that current assets now exceed current liabilities by almost one billion dollars more than the difference which existed between them at the end of 1941.

Cash as a Determinant of A. & B. Volume

If accrued tax liability is deducted from the cash the railroads had on hand on September 30, 1943, and the same deduction is made from cash at the end of 1929, the resulting totals are $380 millions for 1929 and $1,071 millions for 1943. Yet the railroads, with the cash and credit available to them at the end of 1929, proceeded in 1930 to make gross capital expenditures totaling $844 millions—a total not since exceeded, and which may be compared to the outlays of $885 millions in the all-time record year of 1926, and $874 millions thus expended in 1929.

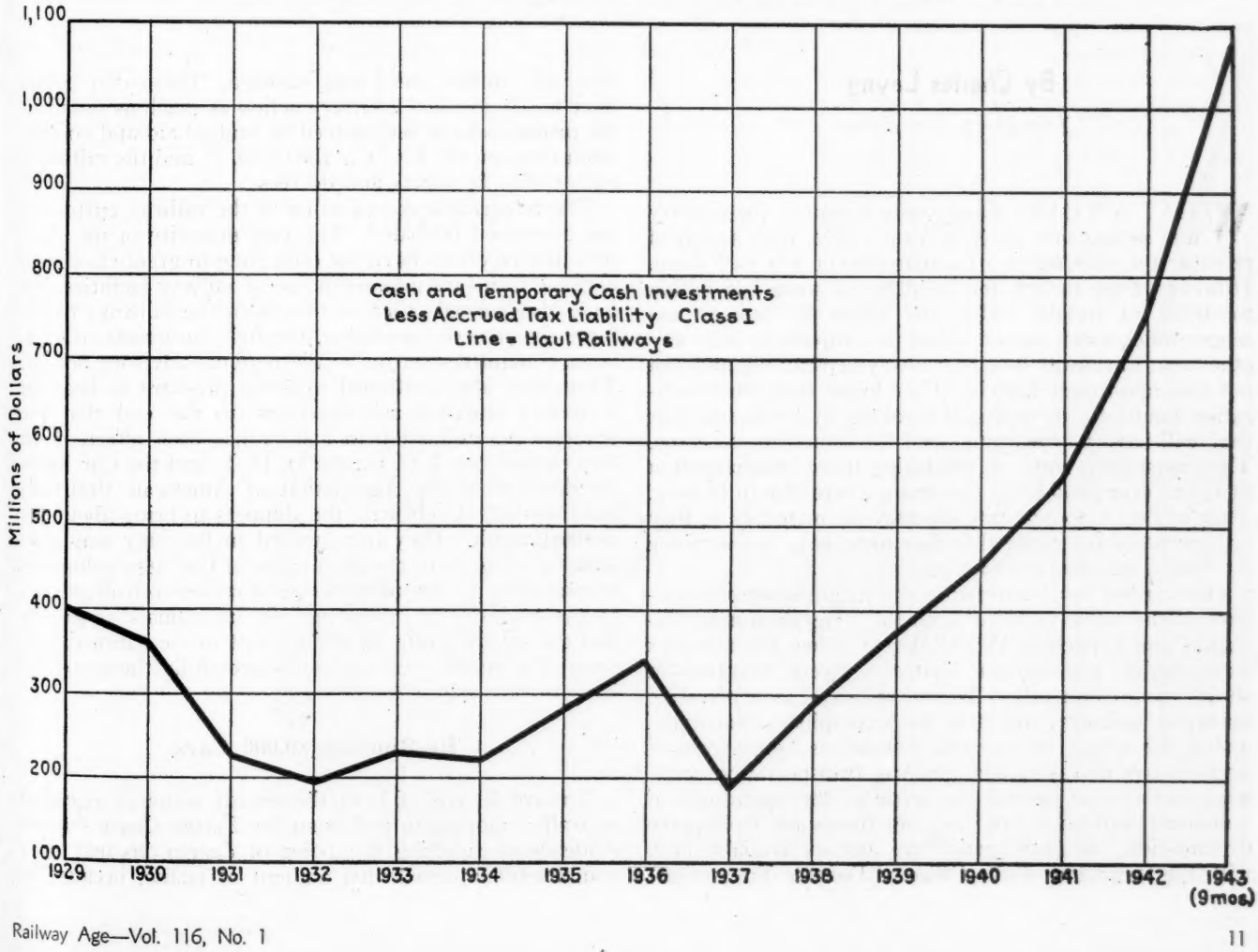
Accumulated cash is not as sound a reliance for capital funds as a ready market for equities and bonds. But it can provide, at least, a start while credit is being restored. And the figures show that—barring further serious inflation of wages, prices, and taxes—the railroads should be better able than ever before in history, at least to initiate capital expenditures at the level of a billion dollars per annum, which, it has been estimated they should expend for a number of years, in order thoroughly to recondition the railroad plant to the new conditions it will face.*

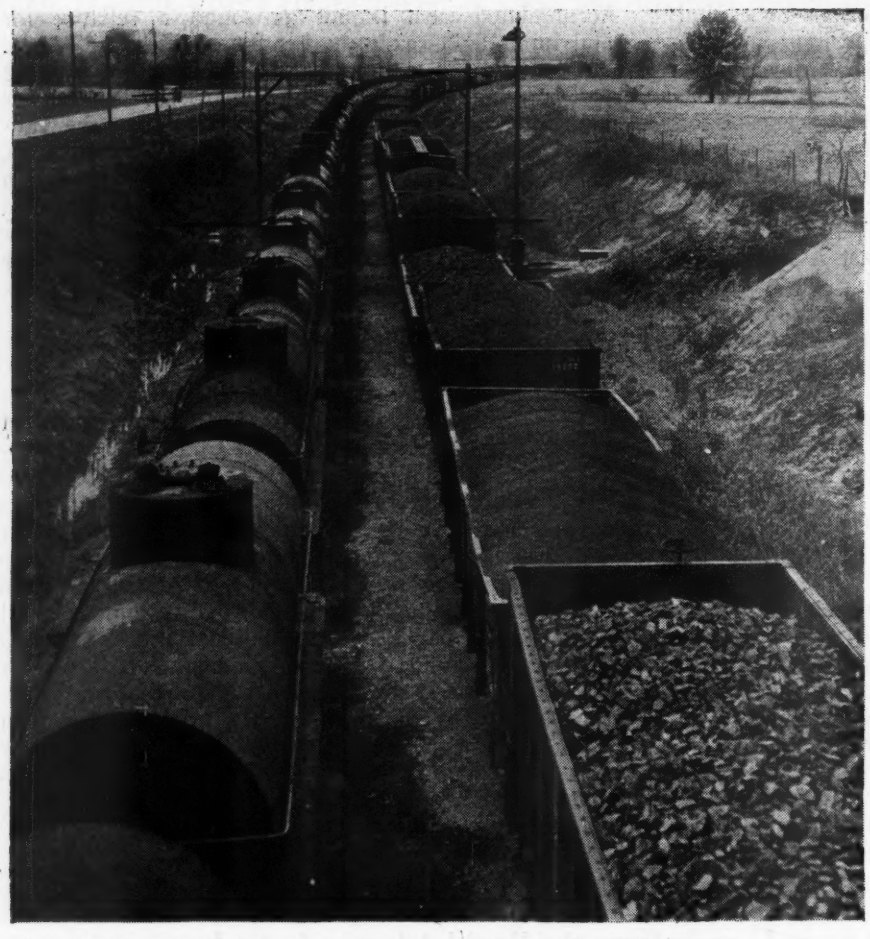
Leonard Ayres' Forecast

Colonel Leonard P. Ayres, the well-known economist, said in a noteworthy article in the January issue of "Tracks" (the Chesapeake & Ohio Lines' magazine)—that railroad revenues appear to have been stabilized at about 6 per cent of the national income; and "national income is going to be greater after this war than it has been previously because the volume of industrial production is going to be greater." With a national income of 120 billions, railroad revenues should be over 7 billjons; and with national income of 100 billions, they should still be 6 billions. On this basis of calculation, it appears to Colonel Ayres that the "post-war prospects for the railroads are bright rather than gloomy." The evidence here adduced indicates that the carriers should be financially ready to provide facilities to attract and handle profitably, traffic which such national income would produce.

* See statement by Judge R. V. Fletcher, *Railway Age*, October 9, page 562, and by J. W. Barriger, *Railway Age*, November 13, page 766.

Hopes for Future Stem Largely from the Rapid Advance in Cash





Vital Coal and Oil Movements Were Handled Without a Hitch

1943—*An Incredible Year*

Every record for traffic volume is broken as railways make their finest contribution to the war effort

By Charles Layng

Transportation Editor

WHAT A YEAR! Every railwayman in the country was saying that on New Year's Eve, with a sigh of relief at the completion of a magnificent job well done. However, even though the handling of some 725 billion ton-miles of freight traffic and about 85 billion passenger-miles seems astronomical in comparison with any other year in railway history, railwaymen can not and will not rest upon their laurels. They know that every indication points to more record-breaking in 1944, and that they will have no breathing spell for some time to come. They must keep right on producing more transportation than was ever produced here or anywhere else in history. They will do it, too, despite shortages in materials, if they are given the assistance that they must have to overcome the critical manpower shortage.

One cannot help contrasting the magnificent performance of the railways today with the congestion and confusion that existed in World War I, when the railways were under government control. Every comparison shows most eloquently what the railways, as a privately managed industry, are able to accomplish. Naturally, under the stress of wartime operations, some central agencies are necessary for handling transportation problems that extend beyond the scope of the operations of individual railways, but, in the Interstate Commerce Commission, one such agency was already available and, with the formation of the Office of Defense Transportation, any further need was satisfied. These two bodies have wisely avoided arbitrary action as much as possible; the problems have been solved by mutual aid and cooperation between the I. C. C., the O. D. T. and the railways, rather than by edicts and decrees.

The remarkable co-operation of the railway customers has continued unabated. The vast majority of the shippers and receivers have not only gone to great effort and expense to insure maximum use of railway facilities, but have also policed other customers of the railways to enforce the same co-operation, through the means of vigilance committees set up by the regional advisory boards. They have also continued to bring pressure to bear on inefficient shippers and receivers, to the end that the greatest car utilization in history has been effected. In this respect, the I. C. C., the O. D. T. and the Car Service division of the Association of American Railroads have worked closely with the shippers to bring about the desired result. They have united in the only way possible to bring about the production of the huge volume of transportation—complete co-operation between all groups, to the exclusion of "chiseling" by individuals or groups and the subordination of self-interest to the national welfare. The results indicate how successfully these policies have worked out.

Re-Routing 80,000 Cars

Toward the end of 1942, the already serious congestion of traffic moving to and from the Pacific Coast showed evidence of reaching the point of danger because of a completely unprecedented amount of traffic, because of

the great distances involved and because the transcontinental railways had been constructed and subsequent improvements designed to move the preponderance of tonnage eastbound; a situation that had always existed heretofore, because of the fact that the western areas are traditionally the producers of raw materials and there has been relatively little industrial development in these areas which required the movement of a large amount of freight westbound. The war changed all that, practically overnight, for westbound tonnage suddenly showed enormous increases. It was evident that there was only one solution to the problems and that was to make the utmost use of all the railroad capacity west of the Mississippi river, and, where necessary, to do this without regard to shippers' routing instructions, or any other limitations except transportation efficiency.

Accordingly, a unique office was set up in Chicago to tackle this problem. W. F. Kirk, assistant general manager of the Missouri Pacific, was detached to act as the joint representative of the Interstate Commerce Commission, the Office of Defense Transportation and of the Western Association of Railway Executives and given virtually complete power over the situation. As a result of his activities, some 80,000 cars were re-routed during 1943, a circumstance that might well have caused a storm of criticism and bickering, except for the fact that it was done in the spirit of co-operation and of agreement on the part of all the railways concerned.

The manner in which this system works is based, first, upon the receipt of prompt, accurate and comprehensive information regarding what is happening on all the western railways, so that any tight spots or bottle-necks become apparent immediately. For this purpose, reports are sent to Mr. Kirk daily by all the western railways, which show the number of cars on hand at midnight at all the principal terminals; the number of cars moved out in the previous 24 hours; the number of freight trains operated; the number of troop trains operated; the number of trains held out of yards for lack of space; the number of trains delayed more than two hours for lack of motive power or of crews and the number of switch engines delayed for lack of crews. Mr. Kirk and his staff keep constant watch on these reports and, where a tight situation appears to be developing, communicate with the superintendent of transportation or other officers of the railway involved at once. This enables them to determine whether the situation gives promise of clearing up properly, or whether remedial action will have to be taken.

In addition to keeping watch over western railways in this manner, Mr. Kirk and his staff are in constant touch with the eastern railways so that they have advance warning of any unusual movements coming to them from the western railways before such movements arrive at the junction points. The situation at all gateways between New Orleans and Chicago is studied constantly, so that, if necessary, remedial action may be taken to relieve a terminal, where the situation promises to be tight, before this terminal actually reaches the point of complete blockade.

No More Pile-Up on Pacific Coast

The conditions at the last group of terminals before the cars arrive in the Pacific Coast area are studied with particular care, in order to avoid swamping that area with cars. The improvement that has been made in conditions on the Pacific Coast is reflected by the fact that an average of 1,086 more cars per day have moved eastbound than westbound through these terminals constantly since September 12, showing that cars are no longer accumulating on the Coast as they had done previously. Part of this relief is accounted for by the fact that an average of 1,203 cars per day are now being unloaded for export on the Pacific Coast, as compared with an average of 649 cars last year. This is the result of improved facilities, improved shipping and improved operating methods. Among the latter have been the routing of traffic into the ports over the railways that serve the particular pier most conveniently, thereby eliminating a very large amount of switching in these Pacific Coast terminals.

A study made of five of the more important and critical of these inland terminals shows what has been accomplished. These comprised Yuma, Ariz., and Ogden, Utah, on the Southern Pacific; Salt Lake City, Utah, on the Western Pacific; Winslow, Ariz., on the Santa Fe and Las Vegas, Nev., on the Union Pacific. In March, 1943, an average of 2,457 loads per day moved through these five terminals, whereas during the first 20 days of November, 1943, this was stepped up to 2,907 loads per day. Four similarly important inland terminals through which traffic moves to the Pacific Northwest also showed marked improvement. These terminals increased their average handling of 1,663 loads per day in March, 1943, to 1,790 loads in November, 1943. An amazing feature of the movement through these latter terminals is the almost exactly balanced movement eastbound and westbound

In the Western Country the Railways Are Extremely Busy, While the Highways Are Unwontedly Trafficless

that took place last fall. On several days, the traffic was exactly 50 per cent eastbound and 50 per cent westbound, and, for two months this balance did not vary more than 3 per cent either way on any day. The saving in empty car mileage that it is possible to make with such even balance is obvious and has been one of the factors in easing the transportation difficulties in the Pacific Northwest.

A large and important saving in empty car mileage has also been effected by sending refrigerator cars back to the Pacific Coast loaded, instead of empty. The loading of general merchandise in such cars has resulted in a considerable expansion in the western railway capacity for, while, because of ice bunkers and other reasons, these cars cannot be loaded as heavily as box cars, nevertheless, their contribution to the loaded movement west is very considerable and has permitted a noticeable improvement in operations generally.

As stated previously, these improvements have been worked out largely through conferences between Mr. Kirk and his staff and the railways with a view to obtaining the maximum use of western railway capacity. Because of the rapidly changing conditions, the only standing orders that have been issued and maintained indefinitely are those prohibiting circuitous routing. All other instances of re-routing are made effective only for the duration of the emergency and, when the need ceases to exist, the instructions are cancelled immediately. The majority of the formal orders have been issued to open a gateway which promises to give better operating conditions, but through which rates do not apply and which would not be used under ordinary conditions. Such orders are, however, of temporary scope and they, too, are cancelled when the need for them no longer exists.

Problems of the Eastern Roads

The O. D. T. has set up offices for the supervision of operations on both the eastern and southeastern roads, but there has been no necessity for re-routing cars on such a wholesale scale as has been done in the West. For one thing, the manpower shortage has been less acute east of the Mississippi river and, by reason of the shorter distances, the re-routing system of the west would be far less effective in the east and southeast.

In the southeast, the numerous military installations continued to require a large amount of efficient transportation throughout the year, although this problem has been relieved somewhat by the construction period for many of these installations drawing to a close and the quantities of construction materials to be hauled has abated materially. In both the east and the southeast, however, the burden imposed on the railways of providing much of the transportation formerly handled by coastwise steamship lines continues and has resulted in a very large load of additional traffic throughout the year. Among such movements are the Florida citrus and vegetable traffic and the movement of coal to New England.

Developments in the European theater of war have also had the effect of increasing the amount of traffic moving through the Atlantic Coast ports, but here again co-operation has solved a problem that was particularly acute in the last war; at that time, far less traffic was being handled through these ports than now, but congestion and absolute saturation, in some instances, were the rule rather than the exception. In this war, the Port Traffic division of the Car Service section of the A. A. R. has succeeded in bringing about complete co-operation between the railways, the stevedoring and dock freight-handling companies and the steamships, with the result that the Atlantic ports remain fluid, despite the tremendously heavy transportation demands that are being placed upon them and there is no indication that this liquid situation will not continue to exist.

Many Railways Hold Regular Classes for New Employees

The Ore Movement

In 1943, as well as 1942, the amount of ore which the railways could bring down to the lake ports from Minnesota and Michigan mines, was governed by the boats that were available at these ports and lake shipping was the limiting factor in each year. Originally, a goal of 86,500,000 tons was set up for 1943 and the railways could easily have handled this amount, as is evidenced by the fact that they handled 92,000,000 tons in the 1942 season without congrestion or delays. However, the demand for boats for handling wheat on the lakes brought about a downward revision in the ore quota in mid-summer to 85,000,000 tons and this quota was reached. It has been estimated that the railways can handle up to 100,000,000 tons of iron ore, if the shipping is available. As soon as the ore season closed, early in December, the powerful locomotives which had been used to handle the ore trains were sent to various western roads to relieve power shortages brought on by wintertime operations there.

The Wheat Movement

As was the case in 1942, the grain trade in the winter wheat-growing areas set up a permit system in 1943 for the movement of wheat from the farms to the elevators. In 1943, however, adequate storage space was available and, in the winter wheat territory, it was not necessary to make use of the permit system at any time. Despite a shortage of manpower at the elevators for unloading the grain, shipments moved regularly from the farms to the elevators and the entire movement was handled without congestion and delays. However, the wheat movement is no longer concentrated into a few weeks immediately following the harvest, for grain is moving throughout the winter in quantities that compare with some of the previous summer-time wheat rushes.

A variety of adverse factors caused delays in the spring wheat territory and, at one time, more than 1,100 elevators were closed for lack of cars. This had been cleared up by the end of the year, for on December 1, there were less than 200 closed elevators. One of the developments that complicated the situation this year was the handling

of a huge soya bean crop, and the permit system had to be applied rather rigorously to this movement to avoid congestion at the elevators. Another factor was the sending of cars from the United States into Canada to load wheat for return to the United States.

Whatever the economy of the wheat-feeding program may be from an agricultural standpoint, it is causing a most serious wastage of transportation. There is no shortage of corn for feeding purposes; as a matter of fact, there is a huge surplus in the corn-raising states of the Middle West, which is being held off the market because of the ceiling price on corn. Such corn is stored close to the feeding areas, whereas the bulk of the wheat for the feeding program must be moved long distances and, in the case of Saskatchewan wheat, cars must be sent empty for long distances into Canada and the return haul with wheat is from five to ten times as long as the haul on corn would be. In wartime, such a wastage of transportation should receive the most earnest consideration from the government agencies in charge of the wheat-feeding plan and the O. D. T. has taken steps to see that the proper agencies are made acquainted with the seriousness of the situation, from a transportation standpoint.

The Oil Movement

Mr. Kirk's office, previously referred to, has overall supervision over the oil movement and, during the year, re-routed some 60,000 cars of oil via different gateways than were called for in the original routings. This was done largely on requests from eastern roads, based upon a tight situation at some one terminal that did not exist at another gateway. The handling of the oil that was thrust upon them so suddenly by the failure of another agency of transportation is another example of the ability of the railways to handle mass transportation. While the acute emergency existed, they were able to keep tank cars rolling to eastern destinations at a rate that so far exceeded the most optimistic estimates, even of railway men themselves, as to seem almost fantastic. This was all the more remarkable because, especially on the eastern roads, the movement of oil had dropped down to a mere trickle before the war, and the complex problems of getting tank cars east and empties west were entirely without precedent.

The opening of the Big Inch pipe-line eastward from its previous terminal at Norris City, Ill., was an important factor in relieving the railways of much of the oil transportation. The line began handling oil early in the fall and reached full capacity just before December 1. However, between February 19, 1943, when the line was completed to Norris City, and the time when it attained its full capacity to the east, the New York Central handled 153,500 tank cars, or more than 33,000,000 barrels of oil out of Norris City, on a single-track railroad, and, in conjunction with other eastern railways, carried this oil to eastern destinations on very fast schedules. This oil represented one-third of all the oil transported by the eastern railways during the period mentioned. At the height of the operation, a train of 75 cars moved in and out of the terminal at Norris City every 52 minutes.

The railways of the southwest faced difficult problems in gathering the oil from all of the scattered sources in the production area into solid trains for the journey east. Terminal railways established all-time records for speed and efficiency in moving the oil through the various gate-

Photo Courtesy Santa Fe

Increasingly Greater Amounts of Freight Are Being Moved by Troop Train

ways to the eastern railways, which, in turn, under the fast schedules set up for the symbol oil trains, were called upon to operate oil trains at high speeds and to solve the problem of distribution of the loaded tank cars and assembling the empties at the destinations.

Handling Army Freight

An intelligent plan of co-operative action that was further perfected during the year, smoothed the way for an unusually efficient performance in the handling of Army freight by the railways. The Transportation Corps of the Army is staffed by officers, many of whom are ex-railwaymen or industrial traffic manager, and all of whom appreciate the problems of the railways and the necessity for joint action if the large volume of military freight now moving is to be handled successfully. The military section of the Car Service division keeps in constant touch with the officers controlling the movement of the military traffic, so much so, in fact, that it is, to all intents and purposes, a part of the Army, and maintains offices in the Army headquarters in the Pentagon building in Washington. There are also close contact, much interchange of information and full discussion of mutual problems between the Army, the O. D. T. and the I. C. C.

In the last war, much of the confusion that prevailed was caused by a lack of such mutual co-operation and understanding. Today, where confusion and misunderstanding arises, they are trifling, in comparison with the stupendous size of the job that is being done and the machinery which has been set up is functioning smoothly and effectively. Briefiy, there exists an intense and earnest spirit to get the job done, instead of hidebound obedience to archaic rules and regulations. Moreover, the Transportation Corps has been extremely helpful in securing shipper co-operation. Officers of the corps are present at each shippers regional advisory board meeting and they urge on shippers the necessity for greater efforts to promote efficient transportation. Major General Gross, chief of the corps, has spoken at more than one such meeting, as have Colonels Williamson and Lasher, and, naturally, the effect upon the shippers has been great.

The Science of Troop Train Operation

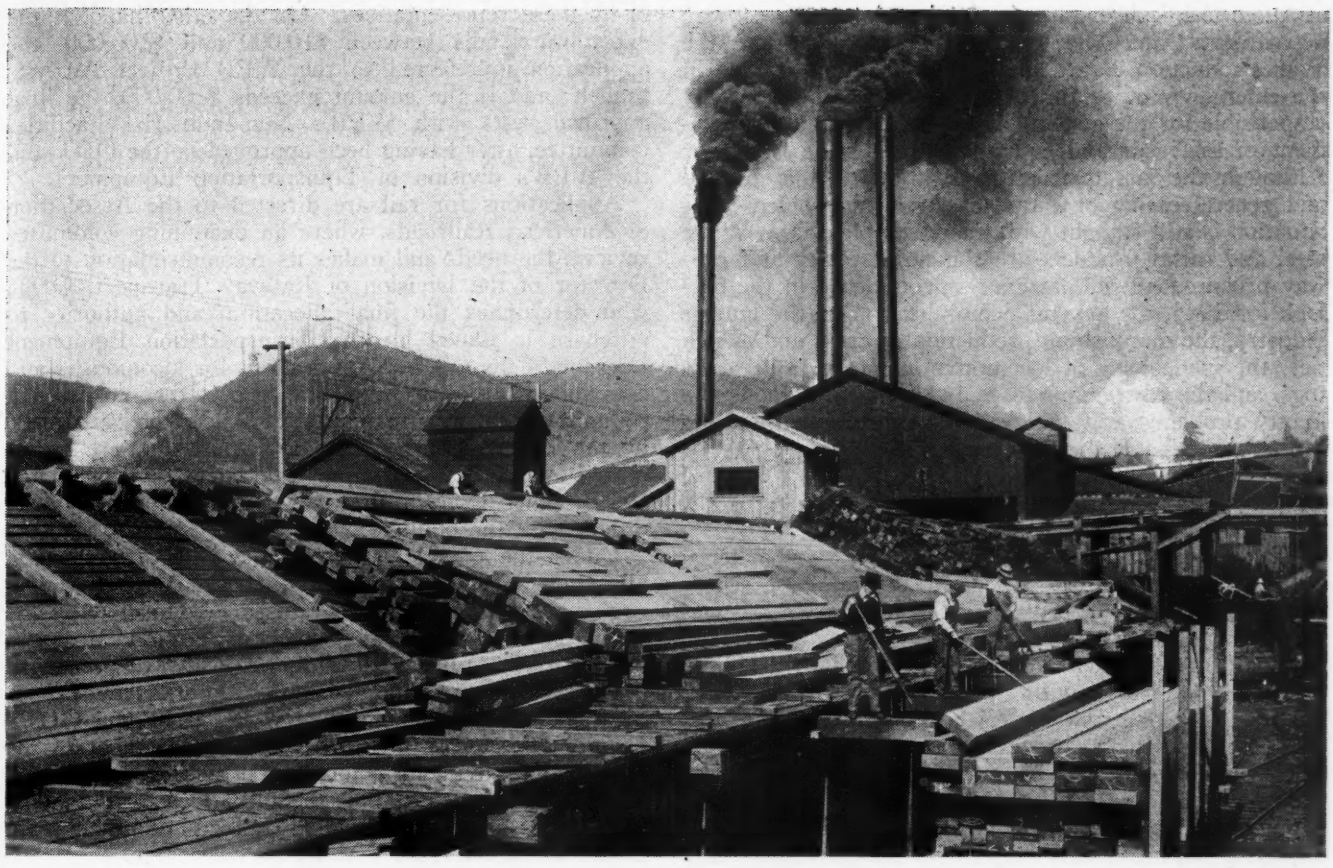
This co-operation has also extended to the movement of troop trains, which is rapidly being developed into the status of an almost exact science. The conference method between all concerned in planning movements involving 75 or more trains has been most effective, since it results in agreed-upon plans that are much more satisfactory than any arbitrary plan imposed upon the railways by the Army.

In this connection, the achievement of the railways in handling troop trains and still keeping other traffic moving cannot be appreciated fully unless it is realized what such movements involve. Through long years of coping with a wide variety of emergencies, the railways are accustomed to meeting the sudden demands of increasing traffic and are prepared for it. In the case of troop trains, however, it is not possible to schedule those trains so that they will fit into the convenience of other railway operations. They must go through and the problems arising from frequent disruptions to planned operations are far more difficult to solve than a much greater number of trains of regularly scheduled traffic would entail. Every superintendent must consider not merely the number of trains he may be called upon to operate, but also the number of trains, plus the troop trains, which latter fall into a quite different category. For this reason, the steadily increasing advance notice that the railways are getting of such movements is most valuable. Whereas, at the start of the war, very little advance notice was given—or could be given, for that matter—today there are virtually no movements on which the notification period is less than 72 hours and it is more than that on most of them. In addition, the schedules of various different movements that were formerly considered separately, are now being integrated, with an attendant large saving in equipment and the elimination of much empty car mileage.

The Astounding Passenger Operations

The passenger miles on American railways will reach the astounding total of 85 billion this year. This is even more remarkable when the figures are broken down and it is seen that this means an average of more than 600 miles for every man, woman and child in the United States. The railways' passenger operations were reviewed in detail in the Annual Passenger Progress issue of the *Railway Age* of November 20, 1943, and they will not again be reviewed extensively here. However, such operations have required the railways to perform a transportation task that staggered the imagination. Only the most ingenious methods have made this accomplishment possible, with a dwindling supply of passenger equipment and an ever-increasing passenger traffic volume.

What a year! Again, these words are the only ones blunt and descriptive enough to express what has been done. As to the future, a quiet confidence pervades the railway industry that still more can be accomplished, if the railways are not stripped of their manpower. Another article in this issue discusses this situation and its possible remedies at length. Assuming that some solution of that problem is found, the railways are capable of exerting themselves still further in the national interest. They can continue to take over when other agencies of transportation break down. While country-wide traffic seems likely to continue to increase, it is unlikely that the increase will be anything like as great as that which the railways have already been called upon to handle and, somehow, if given any sort of assistance in problems outside their control, they will manage to handle any increased traffic now foreseeable and, in all probability they will handle it efficiently from the standpoint of service rendered, which, in wartime, is just about the only measure of efficiency that has meaning. A possible exception to the statement that there will be no sudden, violent increases is in traffic to the Pacific Coast, in case of an early armistice in the European theater. This would, of course, immediately cause a flood of traffic to be diverted in that direction and eastern as well as western lines would feel the effect keenly. It is true that, in some circles, the roads serving the Pacific Coast were considered to be on the point of collapse as early as December, 1942, but a vast volume of traffic has moved over them since, and they still show no signs of collapsing. Instead, while they still have so much business that tight spots develop here and there, they actually improved and built up their total transportation capacity in 1943. Moreover, the rerouting plan has been in effect long enough now to prove its worth and also to provide the experience necessary to enable it to function progressively more smoothly. This experience will be invaluable in meeting any further emergency that may arise. The managements of most western railways are not particularly eager for a further large increase in traffic volume, but they are far better prepared to meet it now than they were in December, 1942.



Lumber Is Now the Number One Problem of Railway Procurement Officers

Prospects for Railway Material

Buyers in 1944 are faced with chaotic conditions in the lumber market, the diminishing production of cross and switch ties and restrictions of fuel

By C. Miles Burpee

Purchasing and Stores Department Editor

RAILWAY procurement officers as a whole face the new year with a spirit of confidence and optimism. Notwithstanding the probability that transportation problems will be much more critical in the months that lie ahead, and that rail transportation may reach its saturation point, they refer to the outstanding accomplishments of rail transportation in 1943 and a gradual easing in the general procurement of materials and supplies as indicative of the fact that the railways have passed the peak of procurement problems successfully. Manufacturing expansion has been practically completed, the desired manufacturing capacity apparently has been reached, immense supplies of war materials have been accumulated; hence, it seems probable that the railways may expect to receive, in 1944, a larger proportion of the equipment, materials and supplies that are needed so urgently if they are to continue to perform as efficiently as they did during 1943.

The replacement of over-taxed locomotives and cars, rail, and the thousands of items needed to maintain adequate railway transportation, is receiving the serious consideration of the Senate war investigating committee. The long-awaited report on transportation of the Truman committee, submitted to the Senate on December 15, embodies a sharp warning that immediate action must be taken to provide the equipment and materials that are so urgently needed to maintain efficient and uninterrupted rail transportation. However, the time has passed when equipment and materials comprise the Number One Problem of the railways. Their place has been usurped by a critical shortage of manpower and any provision for assuring a substantial increase in the flow of equipment and materials must be supplemented by some means of increasing the manpower necessary to utilize such materials and supplies.

The adoption and functioning of the Controlled Materials plan, plus the teamwork and co-operative effort of railway purchasing and stores departments; the oper-

ating, mechanical, engineering and maintenance of way departments; the Office of Defense Transportation; the War Production Board and government authorities in the emergency offices in Washington have been largely responsible for the general improvement in the procurement of materials and equipment during the last year. Although the last quarter of 1943 marked a gradual and general easing of many procurement problems, the situation is still fraught with many complexities. While steel and metal products are somewhat easier and railway procurement officers express confidence in the outlook for 1944, the general demoralization of the lumber industry, the diminishing production of cross and switch ties, the inadequacy of locomotive and other steel castings, and the restrictions in coal supplies are among the knotty problems that face railway procurement officers at the beginning of the new year.

The Controlled Materials Plan

By reason of the tremendous increase in material output necessary to meet the national production schedules that were set shortly after Pearl Harbor, it was evident that the priorities system, designed to handle national defense orders of two billion dollars a month, was inadequate for monthly orders of five or six billion dollars. Existing raw materials at that time were inadequate for both war orders and the national production of consumer goods. A general shortage of critical materials presented the chief problem and not the question of whom was to be served first or how quickly. It was apparent that materials had to be budgeted and allocated.

After experimenting with an inadequate Production Requirements Plan, the Controlled Materials Plan and the centralized WPB review of schedules were introduced late in 1942 as a major advance toward the solution of the problem. These innovations provided not only a more rigorous co-ordination of the country's resources but also a means of establishing basic production schedules. The CMP provides overall controls that extend throughout the production process, it controls not only the three critical metals, steel, copper and aluminum, but their schedules as well, limiting these to the raw materials available. The plan has provided a much closer co-ordination between the flow of raw materials and end-products.

With the inauguration of the CMP came the appointment of the Office of Defense Transportation as a claimant agency for all materials for domestic transportation agencies. The ODT is now responsible for preparing programs and determining the over-all requirements of railway materials; it has its own representative on the WPB requirements committee which apportions the available supply of critical materials and who is the spokesman in the WPB for the consumers within the transportation field. During 1943, the ODT's position in representing the railways was extended by an executive order appointing its director, Joseph B. Eastman, a member of the WPB.

In conjunction with the CMP, a Division of Material and Equipment Requirements was organized within the ODT to act as an over-all co-ordinating group for the several claimant divisions of the ODT. Railway applications for materials intended for maintenance of way and construction projects are filed with the Fixed Properties section of the Division of Railway Transport, ODT, where they are reviewed by a representative of that division and a representative of the Transportation Equipment division of WPB. If the application involves a project expenditure of less than $10,000, it is disposed of by these representatives. On the other hand, if the expenditure falls between $10,000 and $100,000, the application is referred to the WPB Project Analysis branch; and if the amount exceeds $100,000, the final approval rests with WPB's Non-Industrial Facilities committee, after having been approved by the ODT and the WPB's division of Transportation Equipment.

Applications for rail are directed to the Association of American Railroads, where an examining committee reviews the needs and makes its recommendation to the Director of the Division of Railway Transport, ODT, who determines the final allocation, and authority to purchase is issued by the Transportation Equipment Division of the WPB. Applications for locomotives and cars follow a similar procedure, except that no railroad committee reviews the requests. Allocations are made by the Division of Railway Transport and are transmitted to the Transportation Equipment division of the WPB, which issues authority for the placing of railway orders with the builders.

Under the present set-up of the CMP, the general allocation of materials by the WPB is made before rail, equipment and project programs are completed by the ODT. After the railways' quarterly requests are submitted to the ODT's division of Railway Transport, they are analyzed by the division of Materials and Equipment and then submitted to the WPB by the ODT's Deputy Director, who also serves as a member of the WPB's Requirements committee, which is vested with the authority of determining the allocations for the industry. Subsequently, individual railway allotments are drawn up by the ODT's Materials committee.

Critics Question Tampering With the CMP

The general feeling among railway procurement officers is that the CMP is the best plan that has been evolved to date. However, while the general consensus of opinion is that it is working, there is a prevalent belief among many railway officers that if the original plan had been adhered to, it would have accomplished much more in solving material problems. The most disturbing influence has been the periodical tampering that has nullified many of the original concepts and served to confuse all concerned. Critics point to changes in the plan whereby the railways have been urged to place advance orders for steel and other critical materials as much as three quarters and even a full year in advance, on the assumption that when time passes and those delivery dates arrive, allocations will have been made and authority will have been issued to distribute the materials ordered. Such planning, based as it is upon proportionate allowances of materials used in previous quarters, lacks accuracy, say the critics, for with ever-changing conditions, almost from day to day, such practice is not conducive to the economical use of materials. Furthermore, while the WPB recognizes the need for considerable leeway to the extent that railway plans must be altered to meet changing conditions, the critics point to full mill schedules which apparently will delay the production of legitimate orders, for which no opening will be available in the mill schedule.

The 60-day inventory requirement of the CMP has been one of the most disquieting features of the plan. The original plan, based entirely upon the consideration of industrial inventories, failed to comprehend railway inventory requirements and the fundamental necessity for more extensive inventory requirements. While the 60-day inventory rule has not been withdrawn or extended, the WPB has been gradually recognizing the contention of railway officers and expressing no undue concern if

inventories cover requirements for 90 days or slightly longer periods. The working of the CMP during 1943 brought about a better understanding of railway material requirements and the members of the WPB are learning the material problems of the railways by brushing shoulders with railway men and through the concerted and co-operative work of the ODT and the AAR.

Lumber—the Number One Materials Problem

The chaotic condition of the lumber industry in general during 1943 presented one of the most perplexing problems among the many that faced railway procurement officers. While some improvement was evident in the Pacific Coast area at the close of the year, the general complexion had changed but little, and the railways entered the new year with forest products as their Number One Materials Problem. This condition may be ascribed largely to the early and inadequate methods employed by the government in attempting to control prices and to enforce regulations; the exceptionally heavy demands for forest products by government agencies; labor shortages in both logging and milling operations; the adverse reaction of governmental directives aimed at aiding farmers and growers of live-stock; the Black Market reaction to price ceilings; the difficulties experienced by small mills in securing machinery, parts and materials; and the lack of co-operation and concerted effort on the part of lumbermen and lumber associations in not defining and establishing a clear-cut long-range policy.

Lumber production during the first three quarters of 1943 totalled 25,031,770,000 board ft., a reduction ranging from 8 per cent to 10 per cent from the corresponding period of 1942. On the basis of these figures and the seasonal decrease that normally occurs in the fourth quarter, the WPB estimates that the output for the entire year will be approximately 10 per cent less than during 1942, when 36,401,895,000 board ft. were produced. Consumption for 1943, the WPB estimates, exceeded production by 4,000,000,000 board ft. The over-all situation on lumber is described as "extremely critical" and although estimated requirements for 1944 are approximately 3,000,000,000 board ft. below the 1943 figure, the WPB anticipates that production will decline further and it doubts that the supply will balance the demand unless every possible restriction is imposed on so-called non-essential uses.

The general lumber outlook for the railways indicates a limited supply by reason of the huge demands for war; the means of increasing the supply is being depleted by the same cause and further constriction rather than relief is in prospect for 1944. A few roads report that they succeeded in meeting their lumber requirements with comparatively little trouble last year, but the great majority classed lumber requirements as one of the most critical problems facing purchases and stores officers. One road, for example, would welcome the opportunity to place orders immediately for 13,000,000 board ft. of the common grades and 5,000,000 board ft. of bridge timbers if delivery could be assured within a reasonable time. Another points to a long list of orders that have been accepted and placed, but on which deliveries are not coming through.

Southern Pine Situation Is Critical

It has been necessary for railway lumber buyers to send out inquiries with several optional grades and often to accept deliveries of better and lower than average grades in order to obtain deliveries. Prices generally are exceptionally high and out of line. The situation throughout the Southern pine territory is thoroughly demoralized. In order to encourage deliveries of its huge orders, the government has not only increased prices from time to time but its buyers have also purchased to grade differentials with which it has been impossible for the railways to compete. Exceptional government demands for hardwood and the prices offered have driven many of the small mills from the production of pine to the more profitable cutting of hardwoods. By reason of the scarcity of pine stringers, posts and caps, many of the roads in the Southern pine territory have, of necessity, ordered Douglas fir from the Pacific Coast, only to be confronted with rules and regulations that have held up deliveries and further complicated procurement, although slight improvement has been noted in these deliveries recently.

The principal hindrance in the Southern pine territory

Reclamation Practices Helped to Meet the Need for Critical Materials in 1943

has been the unprecedented demand for lumber to be used principally for packing cases for the overseas shipment of war materials. Coincident with this demand, the lumber industry has been afflicted with labor problems of major proportions. Not only has it lost heavily to military inductions, but it has also been subject to the competitive influence of higher wages in war industries as a steady drain on its manpower. Governmental restrictions on machinery, repair parts and mill supplies as well as the severe restriction on trucks, repair parts and tires, together with restrictive regulations governing their procurement, have been responsible for lowering lumber production. Although price regulations have produced some small benefits, early government methods of lumber procurement are in large measure responsible for encouraging Black Market practices, and the disappearance of certain types of building lumber from the market. While it is true that the government has attempted to correct this situation through the enactment of Amendment No. 8 to RMPR 19, nevertheless price regulation has not exerted the same detrimental influence as wage regulation and the drain on manpower.

One of the most interesting developments within the lumber industry of the Southern States, at this writing, is the investigation of the Patman committee. Following detailed accounts of their troubles by large and small producers of Southern pine lumber at a recent meeting of the committee, J. Philip Boyd, director of the Lumber and Lumber Products division of the WPB, declared that the government had decided at last to clamp Conservation Order No. M-361 on Southern pine. In

the course of his remarks, he charged that the Southern pine industry "has not done a distribution job," but admitted that the fault lies partly with the government, including the WPB. So far as the Southern pine lumber industry is concerned, he said that the priority system has broken down but he made it plain that the WPB intends to retain complete control of lumber distribution and will limit the armed forces to a 90-day inventory. During the course of the hearing, Peter A. Stone, lumber price executive of the OPA, declared that the federal government itself is taking the lead in stumpage inflation by reason of the fact that the Forest Service has been raising the price of stumpage in the National forests.

Douglas Fir Supply Disrupted by CPA Buying

That the many intricate and perplexing problems facing the railway lumber buyer are not confined to Southern pine is evident in a brief survey of lumber and timber production in the Northwest. In addition to many of the same problems that confront the lumber industry in the South, the buyer of Douglas Fir and other species in the Northwest is confronted not only with the unprecedented demands of government agencies but also with added problems presented by Limitation Order L-218 governing the control and release of lumber subject to the jurisdiction of the WPB Lumber Division Administrator.

Although the outlook for 1944 is linked inevitably with what transpires in the several theatres of war, increasing military activity in the Pacific area does not augur well for the unrestricted delivery of railway lumber. The supply of one-inch lumber and clear stock for repairing cars and for general construction purposes will continue uncertain well into 1944 unless unforeseen developments remove the pressure of war requirements. Bridge timbers should be available on a reduced inventory basis.

Although it was anticipated that the unusually heavy demand for war purposes, purchased largely through the Central Procurement Agency, would diminish gradually toward the end of 1943, this was not the case, except for a slight lull during mid-summer. The schedules offered at so-called "auctions" held periodically in Portland, Ore., Seattle, Eugene, Spokane and other western points increased substantially during October and November.

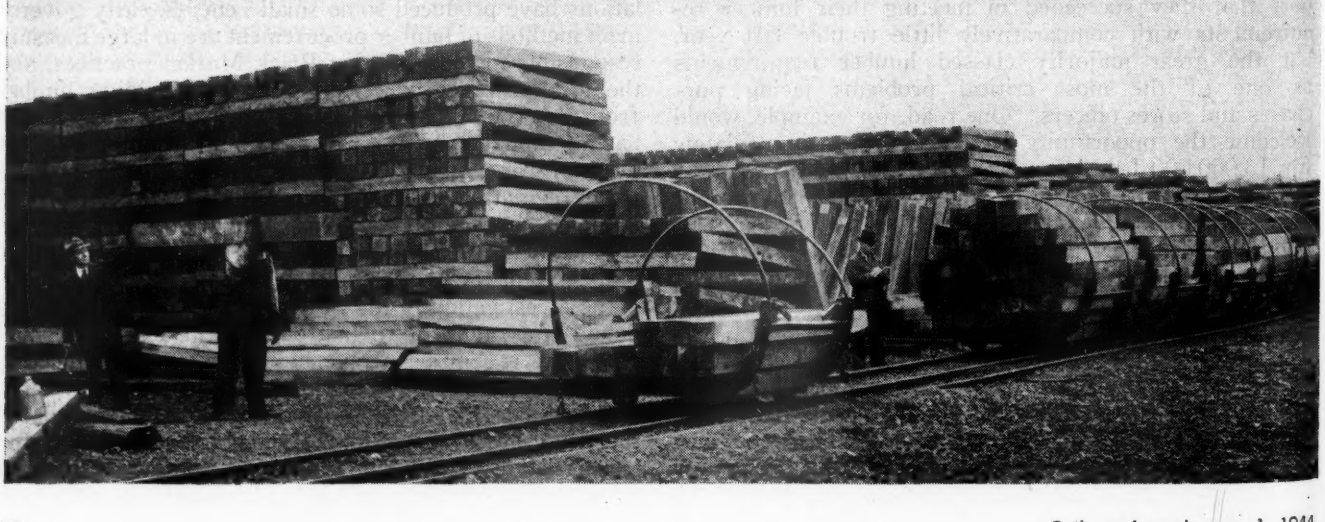
Earlier in the year, the railways had difficulty in securing the required quantity of stress grade bridge timbers, owing to the large military requirements and, although this situation has improved to some extent, it is now practically impossible to secure one-inch material for general purposes on account of the unprecedented need for boxing and crating stock, war housing and ships' dunnage. Pressure has been brought to bear upon the mills, in recent weeks, to reduce or eliminate heavy cutting, including crossties in some instances, in favor of boards and dimensions. There is little likelihood of any change in this respect for the near future, particularly since large quantities of building lumber are being purchased for Pacific island destinations.

During the last quarter of 1943, the Director General of Operations, acting in accordance with the regulations embodied in Limitation Order L-218, required the mills to substantiate the fact that at least 50 per cent of their lumber on order represented orders placed through the CPA, before releases to railways and other users were authorized. It is apparent that the director, having in mind the essential service of the railways, has been helpful in aiding the railways to solve some of their more pressing lumber problems and that no *vitally* important shortages will be countenanced. The agricultural directive, in effect during the last half of the year, nullified priority ratings in certain districts and aggravated the scarcity of boards and dimension needed for railway building and maintenance of way purposes.

Prices established by OPA in some instances have been unsatisfactory to the mills and have resulted in refusals to accept orders to customary specifications, thereby introducing confusion and delays. By reason of the many complications, it has been necessary for the railway buyer to modify grades, to accept substitute items and in some instances to resort to practices not heretofore countenanced in order to overcome obstacles of supply and delivery.

At the close of the year, clear lumber for car work was exceptionally scarce by reason of the large quantities required for airplane construction, ship decking and the manufacture of plywood. Labor conditions show no improvement and the drafting of loggers and mill men continues its telling effect. As in the South, the smaller mills still find it difficult to secure adequate parts for repairs and gasoline allotments for trucks are still inadequate, although the last half of 1943 saw a slight easing of these conditions. With rare exceptions, western ponderosa pine mills were unable to accept railway orders during the entire year of 1943, because their entire output was devoted to the manufacture of boxes

The Cross Tie Production Outlook for 1944 is Far from Encouraging



and crates, to agricultural users and to government agencies. Moreover, no immediate improvement is in prospect.

The general critical condition of the lumber industry is also reflected to a considerable degree within the closely-allied tie industry. Many of the same demoralizing influences that have brought severe restrictions in the supply of railway lumber requirements, are responsible for the steadily decreasing production of cross and switch ties. Some of the very regulations and methods of control that were adopted to ease the lumber situation are, in large measure, directly responsible for promoting trouble within an allied industry already permeated with many complications.

Under the existing circumstances, the tie industry has acquitted itself well in furnishing the quantities of railway ties that were delivered in 1943. Its troubles, like those of the lumber industry, have sprung primarily from the shortage of manpower; the inequalities between ceiling prices for lumber and cross and switch ties; the widespread lack of adequate mill equipment, accessories and supplies; and the extensive buying of forest products by government agencies. The outlook for 1944 is far from encouraging. As long as the war continues, over-all production will continue to decline unless steps are taken immediately to eliminate present obstacles and to place the industry on a firm basis.

To Improve the Tie Supply

The solution of the problem and the substantial increase now required in railway cross and switch tie production are inseparably linked with the fundamental considerations of: (1) the necessity for prompt action in providing and maintaining an adequate supply of labor; (2) establishing for switch ties, ceiling prices that are in proper relation to other forest products; and, (3) the proper adjustment of cross-tie prices so that manufacturers will be encouraged to produce ties rather than lumber.

For the railways as a whole, the cross and switch tie situation ranks next to lumber as the most critical material problem. In a few exceptional instances, long-range buying policies that have been pursued for several years have eased the situation on some roads, although even in these instances, labor shortages at wood preservation plants have introduced complications that have upset plans and schedules. On the other hand, many roads report the severe disruption of on-line production and the necessity for purchasing off-line ties for the first time in many years.

Within the states of New York, New Jersey, Pennsylvania, Maryland, Delaware, Ohio, Indiana, Michigan, Wisconsin, Virginia, West Virginia and portions of Kentucky and Tennessee, practically all of the 1943 crossties were produced by sawmills; hewers never have accounted for any large proportion of the production within this territory. Under existing conditions within this area, with pronounced price differentials in favor of hardwood lumber, it was natural for the predominating proportion of the logs to be sawn into lumber. Only individual operators who owned strictly tie timber, continued producing crossties, while most operators diverted their production to more remunerative channels. There is an ever-increasing production of Tc and Td species and a steady decline in the production of the Ta group —not by reason of any lack of oak timber, but because of a better lumber market for the oak.

The OPA's MPR-216 became effective in December, 1942, and established ceiling prices for ties that marked substantial increases over preceding regulation prices. During the first quarter of 1943, the production of crossties increased over the corresponding quarter of 1942 by reason of the price increase and the general admittance of the Td group under the same regulation. Production also increased during mid-summer, but, by reason of subsequent increases in lumber ceilings (while ceiling prices for ties remained unchanged) production in general eased off, although in some instances the sawing of oak and gum, plus the sawing of Td species, brought more normal production.

Hardwood lumber prices have restricted the production of oak and gum by reason of the prevailing differential of $12 per M. b. m. between the ceiling price of $28 for ties and $40 for one-inch hardwood lumber. The OPA has placed ceilings on practically all forest products except stumpage, with the result that desirable stumpage for tie production is being held for higher prices and pronounced shortages exist.

Manpower Shortage Is a Big Obstacle

Shortage of manpower is the outstanding problem within the tie industry. In the Northern territory the tie producers have lost their younger men to the military forces; those rejected have responded to the higher wages of the war industries and those that remain with the mills are generally the elder and less physically fit, or men who, by reason of farming interests or for other reasons, have remained to serve as part-time workers in the tie industry.

In the South, the competition of the pulpwood industry has drained most of the remaining tie hewers from the field. There is no incentive for the colored tie hewers of this territory, who have not been drafted or who are not working in shipyards or in other war industries, to produce crossties when cutting pulpwood offers much better pay. Labor shortages are having a pronounced and serious effect, not only on the operations in the woods, but also in the sawmills and at the treating plants as well.

The Effect of OPA's Procrastination

Inaction, procrastination and apparent indifference on the part of OPA toward the railway tie situation, particularly during the latter part of 1942 and the entire first half of 1943, are responsible not only for bringing production along many railway lines to a virtual standstill, but also for the disruption and loss of many production organizations. It was this very lassitude on the part of OPA in failing to give the matter prompt consideration and in failing to provide prompt relief through adequate ceiling prices and controls, that threw railway tie production, in several territories, into a decline for six months and more between the fall of 1942 and the spring of 1943. As a direct result, when OPA finally got around to providing some measure of relief, six months too late, contractors' and producers' organizations were gone; woodsmen and millmen were lost to war industries and in most instances they still remain there, enjoying the benefits of much higher wages.

It was under such circumstances that, for the first time in 15 years, one railway, after innumerable appeals to the authorities in Washington, was forced during 1943 to purchase a large proportion of its tie requirements from off-line sources, with added transportation costs, while standing tie-timber remained in its own backyard. Nor is this an isolated case, for similar instances, with variations in detail, are reported from widely different territories.

The ceiling prices for oak switch ties are too low in all zones to promote adequate production. With the ceiling prices for oak freight car stock generally $8 to $10 per M. b. m. above the ceiling for switch ties, it naturally follows that sawmills are not cutting any great quantity of switch ties at $40 when there is a good market for common dimension in desirable cutting sizes and lengths, at premiums of $8 or $10 above the price of switch ties. Again, during recent months the OPA has granted upward revisions for both Southern pine and hardwood lumber, but switch tie prices were left as they were. The number of band-mills operating in oak has been gradually diminishing and now, with the unprecedented demand for low-grade lumber at exceptionally good prices, it is almost impossible to secure any volume of switch ties from these mills, whereas, a few years ago this was the recognized source of a predominant part of the general supply of switch timber.

In the Northwest, some of the roads report that the tie situation during 1943 was not as acute as the lumber problem, for the reason that many mills specializing in cross and switch ties either are not equipped for or do not have stumpage suited to sawing desirable smaller items or timber of the stress grades. Here again, during the early part of 1943, reduced production resulted from procrastination on the part of the OPA in adjusting tie prices, and it was not until an upward revision of prices, under an amendment to MPR-284 on May 22, 1943, eased the situation and encouraged the general resumption of tie production.

Outlook for Coal Is Better

Work stoppages at the mines, combined with the increasing coal requirements of war industries, created a critical shortage in the supply of bituminous coal during 1943. It is estimated that the national coal stockpile is short approximately 40,000,000 tons and although coal production is increasing (increased production in the week ended November 20, for the second successive week after the end of the mine strikes, resulted in a rise of approximately 950,000 tons in the amount of coal forwarded for distribution to three of the nation's important consuming areas) apparently there is little hope of attaining the winter production goal of 335,000,000 tons.

As a result of the many complexities within the coal industry, the problem of coal supply is acute on many of the railways. The frequent work stoppages at the mines greatly depleted railway stocks and the increased costs which have had to be met by the operators, promoted a general reluctance to furnish railway fuel at prevailing ceilings when better returns were to be had by shipping the coal to other consumers. By reason of the various suspensions in mining during 1943, many consumers were forced to use coal that was stored on the ground, with the result that stockpiles, by the year's end, had been depleted materially, compared to stocks at the close of the previous year.

The issuance of War Regulation No. 10 by the Solid Fuels Administration on November 17, 1943, marked the inauguration of a new bituminous coal distribution program designed to make currently available increased supplies of coal to meet the requirements of industrial and domestic consumers whose needs are urgent. Placed in effect on December 1, the program, which covers nearly all the bituminous coal produced in the eastern half of the country, requires reductions in coal shipments to railways and industrial plants having coal in storage equivalent to more than 25 days consumption. Such railways and industrial plants must reduce their current orders for coal to 75 per cent or less of monthly burning requirements. However, because of the hazards of transportation, the program allows consumers supplied from the areas affected, in Canada, and those supplied by tidewater in New York harbor and New England, to maintain an extra 15 days' supply above the 25-day limitation. Estimates show that the program will free approximately 5,000,000 tons of coal each month for the next few months, to move to railways, industrial plants and domestic consumers with stocks below the standards that have been established. The program also provides that railways with stocks below a certain

Supplies of Carbon Steel Will Be Larger in 1944

level, may order enough coal to build up their storage piles to practical levels within a few months. All in all, War Regulation No. 10 and the increase of 17 ct. per ton in ceiling prices authorized by the OPA on November 29, to offset the increased miners' wage scale, indicate an easing of the railway coal situation and the anticipation of an increased flow to the roads that need it.

Canadian Coal Under Control

Conditions on the Canadian roads closely parallel those prevailing in this country, developments in war industries apparently have reached the saturation point and, with the exception that increases may be expected in railway coal consumption, by reason of anticipated increases in traffic, the demand for coal during 1944 should remain at approximately the 1943 level and with no cause for alarm.

In Canada, the coal industry operates under a National Emergency Proclamation that was issued in May, 1943. This proclamation established a priority category for miners and provides the National Selective Service with authority to transfer to the mines experienced miners engaged in other work or to return mine workers from the armed forces to the mines. Absenteeism, amounting to 23 per cent as compared to 7 per cent or 8 per cent in normal times, was probably the greatest factor in reducing Canadian coal production and while mixed opinions prevail as to the effectiveness of the methods of governmental control, nevertheless the 1943 output was

probably better than the estimates prepared early in the year. By reason of the measures instituted to provide equitable distribution, grave shortages have been avoided although the general opinion prevails that if greater attention had been paid to production, the ever-present shortage threat would have been minimized.

In addition to the steps taken to control the distribution of coal, the Canadian government, through its various agencies, carried on a successful campaign to reduce coal consumption. Through the aggressive co-operation of the railways, broad and comprehensive surveys were carried out to check every possible source of railway waste, down to the smallest item, with the result that substantial savings were made in railway consumption. Another factor of considerable importance was the comparatively mild weather during the months of September and October which was responsible for saving some 500,000 tons of coal.

Steel and Equipment Outlook Brighter

Carbon steel is still the controlling factor in production for both the war and the home fronts. Although carbon steel production is still substantially below the demand, it is believed that supplies of the basic metal to be made available during the first quarter of 1944 will be larger than for any comparable period in the past. Added weight is given to this opinion by the further improvement of the WPB's allotment of carbon steel and other necessary CMP materials for domestic transportation for the first quarter of 1944.

The transportation industry will receive a total allotment of 1,564,000 tons of carbon steel for the ODT program for the first quarter of 1944, as compared with 1,380,000 tons for the fourth quarter of 1943 and 1,200,000 tons for the third quarter. Requisite amounts of alloy steel, copper and aluminum were also allocated for use with the carbon steel.

Although the allocation of 1,564,000 tons of carbon steel is less than the amount proposed by ODT as the minimum requirement for domestic transportation, it appears to be the maximum quantity that can be utilized in the first quarter of 1944 by the manufacturers of domestic transportation equipment and steel rail mills in the light of shortages of manpower and facilities. It represents the largest amount of steel that has been granted to the ODT since it assumed its duties as claimant agency in the first quarter of 1943 .

The priority rating of AA-1 has been assigned to locomotives in an effort to speed up the flow of raw materials to builders' plants and the ODT has declared that the full capacity of builders' plants will be devoted to the building of domestic locomotives during the first quarter of 1944. Moreover, the use of alloy steels for the maintenance and construction of locomotives will be granted by the WPB where the railways request it.

By reason of the acute shortage of lumber and an improvement in steel production, the WPB on December 7, authorized the construction of 30,000 all-steel freight cars for 1944 in place of the composite wood and steel type previously approved as wartime models. The use of steel for the maintenance of existing all-steel cars also has been approved by the WPB, thus eliminating the previous ruling that required the use of lumber for many replacement parts.

The railways will receive 475,000 short tons of replacement rail and additional steel for accessories during the first quarter of 1944, compared with 400,000 tons for the last quarter of 1943. Furthermore, the ODT received assurance from the WPB Requirements Committee that, barring unforeseen military requirements, it will receive a minimum total 1944 allocation of 1,800,000 tons of new replacement rail so that allocations can be made for individual roads on that basis, with the understanding that any increased tonnage produced during the year can be allocated from time to time.

New Developments in Steel Specifications

Among the accomplishments of 1943 was the continued effort of the WPB National Emergency Steel Specifications project, directed toward the standardization and simplification of products to provide increased production to meet war needs. The work has dealt with approximately 70 per cent of the entire steel production of the country and although by reason of the many ramifications, it is impracticable to demonstrate the benefits of NESS projects statistically, it is interesting to note that the steel industry has reported an increase of 5 to 15 per cent in the effective use of existing facilities for many commodities. This has been brought about in the mills by less roll changes, longer runs, greater recoveries, less rejections and other means.

Originally established in the fall of 1941 by Donald M. Nelson, the former director of the division of Purchases of the OPA, as an aid to the Iron and Steel section of that agency which later became the Steel division of the WPB, the organization has remained intact. It has been actively engaged in selecting the minimum number of specifications, sections and compositions of steel products necessary for wartime use in order to increase production with the existing facilities. Twelve technical advisory committees, comprising representatives of consumers, manufacturers and various federal agencies, assisted the Administration Committee in the technical phases of NESS work.

Through this organization has come the selection of permissible specifications, the preparation of new or the modification of existing specifications, the simplification of sections and sizes as well as the conservation of critical ferro-alloys. The resulting recommendations are made effective through WPB orders or through the voluntary co-operation of producers and consumers. Co-operative action on the part of sponsor agencies in modifying some 125 existing specifications and issuing 12 new specifications for products previously covered by private or customer specifications, indicates that NESS accomplishments have been achieved largely through modifications suggested by the advisory committees.

Among the specifications for railway products that have been issued upon the recommendations of the technical advisory committees are AAR specifications for carbon steel axles, and forgings; one wear and multiple wear wheels; locomotive and car tires; welded and seamless steel pipe; structural shapes, plates and bars; heat treated multiple wear wheels and heat treated steel tires; as well as AREA specifications for open-hearth steel rails; heat treated carbon-steel track bolts; soft steel and high carbon steel track spikes; soft and medium steel tie plates; and, hot-worked, high carbon steel tie plates.

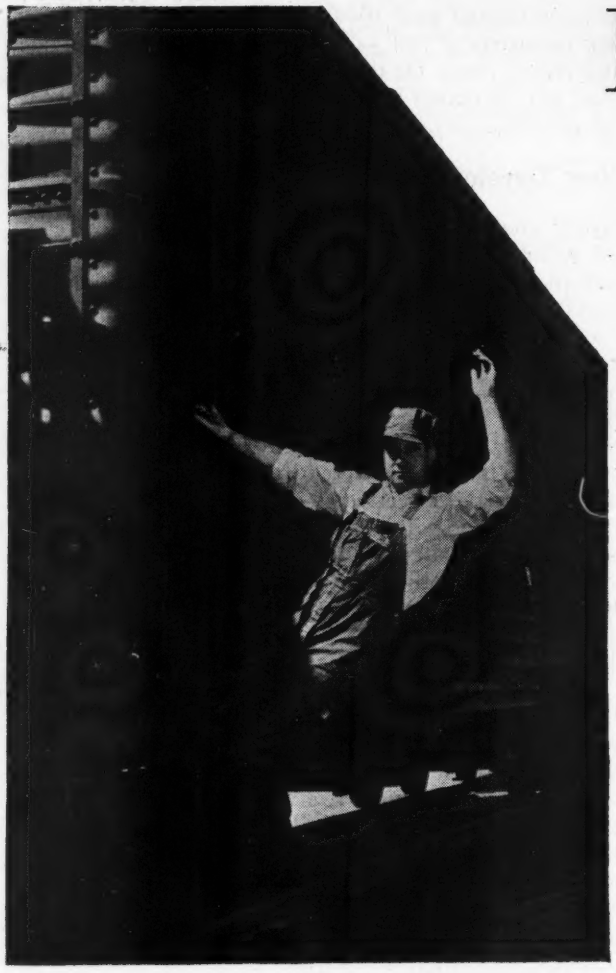
Although these standardization and simplification efforts were carried on for the definite purpose of increasing wartime production, a large part of the work doubtless will be of considerable benefit in postwar production; for example: buyers and designers of carbon steel bars now have available for the first time a list of standard sizes from which to make their selection. Moreover, the NESS work in some instances has been retarded by the lack of specific standards for basic products, thus emphasizing the need for standardization in this field in order that designers in the postwar period may be enabled to start their work on a sound basis.

MANPOWER

Becomes

the No. 1 Problem

By Our Chicago Staff*



The New Employees Are Doing a Good Job, But Lack Necessary Experience

Shortage of help is limiting the railways war efforts—Need is acute in several departments with transportation

ON NOVEMBER 1, the railways were in need of 117,000 additional employees. On September 1, they needed 107,000 employees. These figures are sufficiently startling and alarming in themselves, but with only minor exceptions, the shortage in railway manpower is becoming persistently and progressively worse. At the same time, the work that the railways are being called on to do, as measured by traffic estimates, shows every sign of continuing increases.

Geographically, for the 197 railways consulted, the Middle West showed the greatest shortage in employees, with the East a close second, as shown in the following figures:

	Shortage
Mid-West	28,220
East	23,800
Far West	20,780
Northwest	19,150
Southwest	17,450
Southeast	7,600

It should be borne in mind, in evaluating these figures, however, that these numerical totals do not take into account the percentage of employees shortage to total employees, which is much higher in the Far West than in other areas. The shortage is being felt far more keenly west of the Mississippi than east of that river, but there is no part of the country where the railway labor situation can be described as anything less than critical.

The reason for this is obvious—the railways have been stripped to the bone. The answer to the problem is also obvious. The draft of railwaymen must be stopped, and stopped now, if the railways are to be expected to deliver the same transportation service that they have in the past. So far, the railways have been extraordinarily co-operative, but they are down to the skeleton now—they can do no more.

Ex-railwaymen are to be found on all the far-flung battlefronts in this global war in which we are engaged. It is only proper that the railways should share with other industries the honor of giving men to the service of their country. No one questions that, least of all the railways themselves.

As a matter of fact, in an unprepared country, the railways were the only industry which was prepared from a military standpoint. Under the leadership of General Carl R. Gray, Jr., then vice-president of the C. St. P. M. & O., the railways organized railway battalions many years before the war.

Immediately after the outbreak of the war, these battalions were activated and they were ready for prompt and effective action as the Military Railway Service of the Transportation Corps almost immediately. It would have been impossible to build up such an organization so quickly if the railways had not foreseen this ultimate need many years ago. These battalions are serving in Alaska and in Australia; in Persia and in North Africa. They followed on the heels of the troops entering Sicily and Italy to get the railways of those countries back into operation as soon as possible.

Drain to Railway Battalions

These railway battalions drained thousands of the railways' most highly skilled and experienced employees. It should not be forgotten either that they took with them a large number of executive and supervisory officers to supply the officer personnel for these battalions, which are staffed almost entirely by former railway officers. This cross-section includes men of every supervisory rank, from vice-president down to foremen. It is an important segment numerically, but far more important

* E. L. Woodward, George E. Boyd and Charles Layng.

Boiler Work One of the Exacting Tasks Performed By Mechanical Forces

from the standpoint of the indispensability of these men. It is difficult enough in peace-time to replace a general manager, a division engineer, a shop superintendent, a signal engineer or a general storekeeper, but in war-time the loss is much greater. Yet, the railways gave a large number of their best men willingly for the good of the cause. Now, however, there are no more railroaders—officers or employees—who can be spared. A halt must be called sometime if transportation is to continue to be efficient, and that time has come. Only the thousands of dollars spent by the railways in recruiting manpower and in training new employees has staved off disaster this long. The railways should and will continue these expenditures, but no efforts that the railways themselves can make will suffice any longer. They must have help —and have it soon.

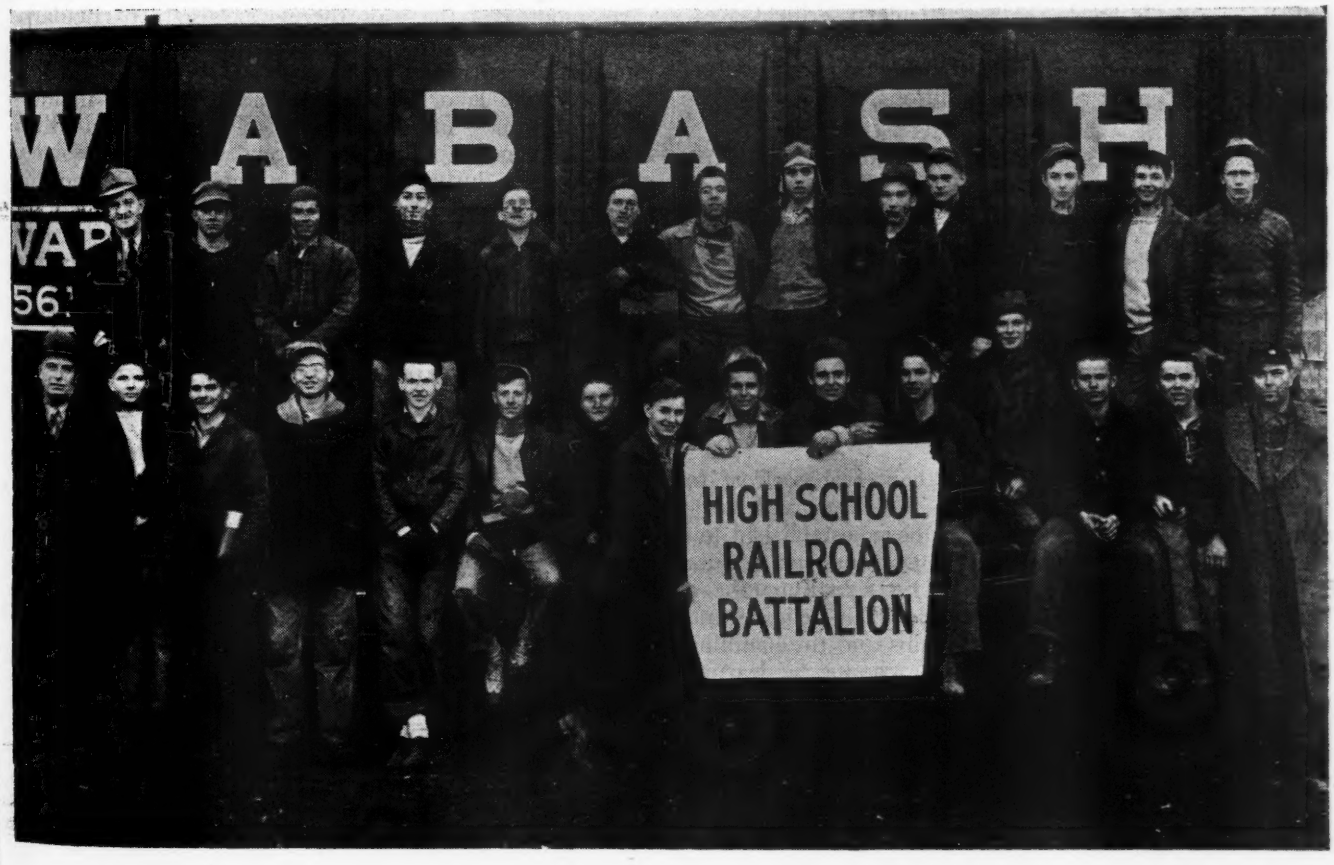
A man cannot learn the book of operating rules overnight; neither can he learn to handle a telegraph key in a few hours or even learn to wait on a table in a dining car in five minutes. Unlike any other industry, thousands of lives depend upon the experience and skill of railwaymen. The new trainmen, firemen and switchmen who have been hired, have been trained amazingly well, and have reacted surprisingly well to such training. There is, however, no effective substitute for experience and a fireman or trainman only needs to make one mistake to bring about an appalling disaster. So long as there was only one "green" man among a crew of "old heads," there was no particular danger and, in addition, the training of the new man was almost automatic. Now. however, with "green" men predominating, no experienced, or even partially experienced, man can be spared.

The number of trains, loaded with badly needed war freight, that are delayed waiting for crews is mounting steadily, particularly in the Far West. This is caused in part by the strangling "feather-bed" rules forced upon the railways by the brotherhoods, although many of these rules have been abrogated for the duration. Currently, these tie-ups are caused mostly by a lack of manpower and by slowing of the movement in general because of the inexperience of the crews. Congestion is imminent and complete stagnation is not too far distant, unless effective remedial measures are taken.

Figures Show Need for Immediate Action

There is no need to enter into a long argument in support of the foregoing statement. Any detailed analysis of the current figures of operating department labor

High School Boys, Working During the Summer and Week-Ends, Helped Complete Maintenance Programs on Many Roads



shortages shows it, although it does not show the number of "green" employees, who constitute a further drag on efficiency. The accompanying table shows the latest figures.

These figures speak for themselves. Attention should be directed particularly, however, to the shortage of telegraphers. These men share responsibility, through the proper receipt and transmission of train orders, for the lives of thousands of persons. Nearly every railway has established a training school for telegraphers, but their efforts have not been sufficient, in spite of everything they could do, as is indicated by the figures. The drain on telegraphers, particularly for the Signal Corps, has been extreme. A telegrapher cannot be made overnight and it takes years to train a dispatcher, even though one draft board, in a particularly critical area, calmly informed the railway that "You can make a dispatcher in six months." Such thinking approaches criminal folly under present conditions.

Table No. 1

Operating Department Labor Shortages by Job Classification

(For 190 Selected Railways)

As of November 1, 1943

Station Agent	9
Baggageman	150
Brakeman	324
Callboy	64
Conductor	84
Cook	385
Crew dispatcher	6
Engineman	89
Expressman	14
Fireman (locomotive)	957
Freight handler	4,110
Gateman	49
Hostler	143
Leverman	11
Mail and Baggage Handler	906
Patrolman	20
Porter, train	56
Redcap	106
Switchman	3,046
Switchtender	204
Telegrapher	1,596
Telegrapher-Agent	254
Telegrapher-Clerk	25
Towerman	43
Train dispatcher	47
Waiters	705
Watchman (crossing)	158
Watchman (engine)	99
Yardmaster	3

Results of Present Policy

Even if there were no drain in experienced employees to the armed forces, the large increases in traffic which have occurred since the war began would have caused much difficulty. The increased traffic in itself was enough to strip the extra board of firemen, trainmen and switchmen in a very short time and to require the employment of large numbers of inexperienced men in these key positions.

The additional demands of the draft have made the situation perilous.

The railways have made every conceivable effort to solve their manpower problems. Elaborate and well-conducted training schools have been established on many railways, but in railway operation, experience is highly important and there is no substitute for a sprinkling of "old heads" among the train, engine and switch crews. The operation of trains and the handling of cars are technical problems that cannot be learned overnight. This is particularly true in the case of road crews, who are necessarily without direct supervision by operating officers in many instances. New men, with all the good will in the world, make mistakes that cause delays and, apart from questions of safety, it does not take many mistakes to cause a "creeping paralysis" of transportation to set in on any given division or operating district.

This trend is increased by the current shortage of experienced telegraphers. The ability to send and receive the Morse code can be acquired fairly rapidly in schools set up by the railways for that purpose. However, in the first place, many railways are experiencing difficulty in getting applicants for such schools and, in the second place, the recruits are simply not as fast and experienced as they should be and the important job of handling train orders is slowed down appreciably.

The shortage of train dispatchers is listed as 47 men. This does not seem a very large number, but the shortage of even one train dispatcher is a serious matter, as any superintendent can testify. Moreover, this figure does not tell the whole story. There are many men working as train dispatchers today who would never have been considered for such positions in normal times. A train dispatcher must have the proper temperament to go with the required technical skill. Men with all the required qualifications are hard to find. It is no exaggeration to say that a good train dispatcher is practically irreplaceable.

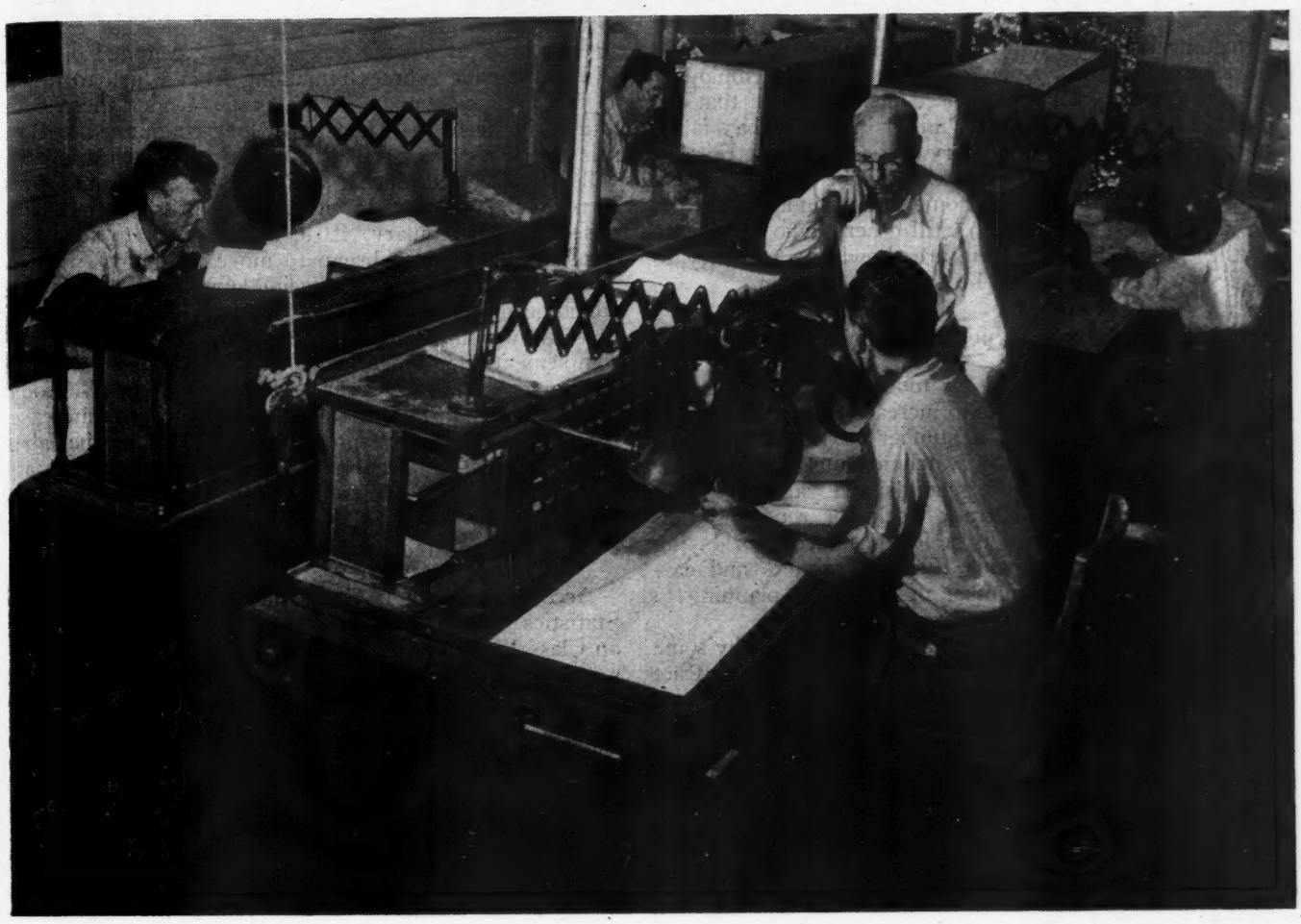
Bad as the situation is in the operating department, it is much worse in the maintenance of way and mechanical departments.

Critical Shortage in Maintenance of Way

In maintenance, shortage of labor is seriously hampering the efforts of the railways to maintain their tracks and structures to standards that will provide reasonable insurance against interruption or delay to the record volume of both military and civilian freight and passenger traffic that is being handled. Losses to the armed forces have been high, with practically no men returned because of disabilities, for under normal conditions high standards of physical fitness are required of men who are employed in maintenance. In addition, during the early months of the war, there was also a particularly large migration to war industries, especially in the areas immediately surrounding these plants.

Today, the labor situation, as it affects the maintenance of tracks and structures, is far more acute than it was a year ago. In fact, it grew worse progressively every month during the year, except June, when the trend was arrested temporarily by the employment of high-school boys and the importation of a large number of Mexican laborers. There is also every indication that conditions will continue to grow worse progressively in the months ahead, unless some action is taken to stop further inductions of these men into the armed forces. The shortages are particularly severe in terminals, in areas surrounding war industries and for distances of 50 to 75 miles from these centers.

Extra-gang labor, which has long been utilized for laying rail, installing ballast, doing general surfacing and on some roads for renewing ties and doing other routine work which requires the services of large mobile gangs, is critically and universally short, with deficiencies on some roads and in some areas ranging up to 70 per cent. On the other hand, the section gang has always been considered the backbone of track maintenance, and has been assigned to routine tasks within limits that are restricted sufficiently to insure close and constant supervision of the track and ready availability in emergencies. Today, there is not only an acute shortage of section labor, but a complete lack of it in some important areas, where numerous track sections have been without laborers during the entire working season, although in



A Western Draft Board Told a Railway That a Train Dispatcher Could Easily Be Replaced in Six Months!

other areas the shortage is less severe and some sections have been able to work full forces throughout the year. On November 1, the shortage in extra-gang and section labor across the country amounted to 15,600 and 40,800 men respectively.

All Classifications Short

Although the forces engaged in track work greatly overshadow the bridge and building forces numerically, and the number of men needed in the latter category is far less than the number of track laborers needed, the shortage is as great relatively and the effect of the deficiency is no less serious, because it reaches into the skilled and semi-skilled classifications. The shortage in carpenters and mechanics and their helpers ranges from 10 to 50 per cent, with some areas suffering much more severely than others. However, almost universally, the shortage of helpers is greater than that of carpenters and mechanics, and conditions are more acute in cities and other industrial areas and easier in those remote from these centers.

Conditions in the signal and water service departments do not differ from those that have been discussed, except in degree. Some roads are finding it exceedingly difficult to employ enough men to maintain their signals, while others find little difficulty in doing so. The situation in respect to operators of power machines and tools employed in maintenance is similar, with shortages reaching as high as 25 per cent. Other classifications, including foremen, painters, masons, plumbers, cooks for labor camps and miscellaneous occupations, aggregating slightly less than 30 in number, are short more than 5,500 men, bringing the total shortage for all maintenance occupations to approximately 61,000, or 52 per cent of the total shortage for all departments.

Figures Do Not Tell Whole Story

Large as this indicated shortage is, however, it does not begin to reveal the true shortage of manpower, for it cannot be stated statistically. In the first place, the armed forces have taken the younger and more vigorous men from all occupations in maintenance, leaving behind the men who have passed the years of greatest agility and ability to exert themselves.

Furthermore, as the labor shortage began to grow acute, the upper age limit for hiring men was relaxed, until now the railways are accepting men 55 and 60 and, in a few instances, 65 years old. Later, the lower limits were reduced and today not a few roads are employing boys of 17 and older. About the same time, physical requirements were also relaxed, except for eyesight, and many roads no longer require physical examination as a preliminary to employment in maintenance.

Again, in maintenance, as in other phases of railway employment, to be fully effective, the employee must have experience in the task to which he is assigned and must have knowledge of railway practices. Otherwise, his efficiency will be low, the hazard of personal injury to himself or his fellow workmen will be high, and wrong action may cause accidents or delays to trains.

The net result of the large proportion of experienced

men remaining who have passed their best years; of extending the upper and lower age limits and of relaxing physical standards for new employees; and of employing a large number of inexperienced men has been that the average man-day production in maintenance has fallen to the lowest level in the history of the railways. Further than this, many of the men who can be obtained today will not work away from home and cannot, therefore, be used to best advantage. Still others, who are aware of the critical need for men, are showing a tendency to do less work than should be expected of them.

Many Expedients Tried

In their desperate need for more labor, the railways have tried many expedients to increase their maintenance force. As one of these, a number of roads have employed women as crossing watchmen and in gangs assigned to policing station grounds and yards. Others have employed them in track work for renewing ties, for surfacing track and, in a few instances, for laying rail. Still others are using them as painters and carpenters, and a larger number of roads are planning to employ women in various capacities in 1944.

Among the expedients that have been adopted by some or all of the roads to hold present employees or attract prospective ones are extension of the working day to 9 or 10 hours, with overtime pay after eight hours; efforts to obtain deferment for key and skilled men, and even laborers where the situation is most critical; obtaining honorable discharges for men outside the military age, but now in the armed forces; intensified solicitation, including personal solicitation and advertising in local newspapers; better housing facilities and food in labor camps; absorption of the additional cost for food in labor camps; utilization of government employment services; retention in service of employees reaching retirement age; up-grading semi-skilled employees; contracting bridge and building maintenance; and the transportation to and from work of men who will not work away from home.

Expedients to increase total employment have included the use of high-school boys full time during the summer vacation and over week ends while school is in session; part-time employment of office workers; part-time employment of professional and business men from local communities; the use of alien internees; the employment of Mexican laborers, of whom 14,500 were imported early in the summer; and the employment of Jamaica negroes and American Indians. Some of the foregoing expedients were highly successful and others were moderately so, while a few were unsuccessful. However, in every case, some benefit was obtained in increased work accomplished and some tasks pushed further toward completion. Efforts have also been made to obtain prisoners of war, but so far nothing has come of such requests. It has been charged that the difficulty in assigning war prisoners to maintenance of way work has been due to the opposition of organized labor.

What of the Future?

Maintenance officers are aware that the labor situation, bad as it is at present, is still growing worse progressively, and they foresee that it is moving towards a crisis within the next few months, unless some concerted action is taken immediately to avoid it. They themselves can do some of the things that are needed, but others must depend on government action or support before they can be put into effect. One of the immediate worries is that of keeping the large terminals open during severe storms this winter. Severe shortages of labor exist at all terminals, and some are practically denuded of men, with no outside sources remaining from which to draw, as has been customary in the past. Under these conditions, in the event of unusual or long-contained storms, it is almost a certainty that traffic through such terminals will be paralyzed during a storm and for some days thereafter. It is not an encouraging prospect. It happened late in January, 1918, and a week to ten days elapsed before traffic began to move normally.

One of the problems facing maintenance officers, which needs correction, is the large turnover in the labor that is now obtainable. In one location where the normal complement is 300 men, more than 3,500 passed through the gangs during the year, keeping them in a chronic state of disorganization. While this is an extreme case, it is typical of the irresponsibility of much of the labor now available, and represents a situation that will aggravate the crisis that lies ahead.

Maintenance of Equipment and Stores

According to the I. C. C. Bureau of Economics and Statistics, 374,973 or 27.31 per cent, of the employees on Class I roads were engaged in maintenance of equipment and stores work at the middle of September, this total being 19,026, or 5.35 per cent larger than in September, 1942. In general, the trend of employment in equipment maintenance and stores work has been steadily upward since a low of 239,796 in 1938 to 350,347 in 1942, and increasing each month in 1943 until a peak of 379,085 was reached in July. The somewhat smaller employment in August and September was brought about by increased difficulty in recruiting railway forces, owing to war demands on man power, and this condition continued through the remainder of the year.

The extent to which present employment in railway maintenance of equipment and stores departments fails to meet current needs is best indicated by monthly reports of the U. S. Railroad Retirement Board. In the latest report, which gives conditions as of November 1, it is estimated that the railroads of the United States, as a whole, need 33,660 more employees in the two departments, this estimate being based on returns from 197 individual roads. This shortage increased quite consistently through the early months of 1943, and contrary to experience in most other railroad departments, was slightly higher on November 1 than in the preceding month. The November report states that, while the need for equipment maintenance laborers and coach cleaners decreased somewhat, the demand for skilled workers,

A Gang of Women Track Laborers Surfacing and Renewing Ties on a Passing Track

Women Employees Are Being Used for Many Tasks in and About Engine Terminals

helpers and apprentices was higher, particularly in carman and machinist occupations. In the north-central states, there was a slight decrease in demand for additional equipment maintenance and stores forces, while substantially increased needs were reported in the Pacific Coast region.

An analysis of labor conditions on one typical transcontinental railroad which enrolls about 17,000 employees in the mechanical department showed a 9 per cent shortage on October 31, the six most badly needed classes of help being, in numerical order: laborers, carman helpers, machinists, coach cleaners, machinist helpers and carmen. As might be expected from Railroad Retirement Board findings, the greatest shortages in all six classes of help occurred on the Pacific Coast lines of this railroad.

The problem which confronted railway mechanical officers during the year in trying to get work done with more or less inadequate help was accentuated in many instances by the turnover of shop forces. On the railroad mentioned, for example, 881 employees quit or were laid off during October, comprising 5.1 per cent of the total force, a percentage which was reduced from 6.8 in September and 7.7 in August. The percentage turnover was practically the same in both the locomotive and car departments; it was highest among laborers and helpers and was lowest among supervisors, clerks and mechanics.

This road considered itself fortunate in being able to take on more than 1,000 new mechanical department employees in October; nevertheless all of these men had to be given special instruction and training in their new work.

Struggled to Hold Help in '43

Still another railroad which employs about 19,000 men in the mechanical department and had a monthly turnover of 6 to 7 per cent during 1943, made net gains of 222 men in July, 167 in August and 9 in September and a loss of 28 men in October.

These figures give a vivid picture of how difficult the struggle to maintain locomotive and car shop forces was throughout 1943.

Part of the labor turnover described was justified by the transfer of men to military service or to work in direct defense plants, but 1944 should bring a more deep and general conviction that railway transportation is just as essential to the national welfare and military defense as the manufacture of arms or their use against the enemy. The railroad last referred to released 1,618 men from its mechanical department to military service from December, 1941, to October, 1943, while the war industries took 407 men in addition.

A middle western carrier reported that 13 per cent of its total mechanical forces have been released to military service, of whom 10 per cent were mechanics; 41 per cent, apprentices; 17 per cent, helpers; 27 per cent, laborers, car cleaners, etc.; and 5 per cent supervisors and clerks.

The railroads utilized their apprentices to the fullest extent possible in 1943 in an effort to bolster their shop forces and prepare for the future, but often the number available was entirely inadequate. One large railroad reported a total of 719 mechanical department apprentices on the system on September 30 and another had 342. Still another reported a 42-per cent shortage in apprentices, in spite of strenuous efforts to maintain its apprentice training program. Of the 719 apprentices mentioned earlier in this paragraph, 339 signed up to become machinists, 127 freight carmen, 73 electricians, 65 boilermakers, 64 sheet metal workers, 18 coach carpenters, 14 blacksmiths, etc., these figures showing the preference for work in the various crafts. Seven of the men were special apprentices and presumably technical graduates.

Women in Mechanical Department

One large eastern carrier reported 8,000 women working in various capacities on December 1. This number, however, included many in clerical positions and is not indicative entirely of increased employment, particularly in the mechanical department. A large western system reported 2,433 women employed in the mechanical department on October 31, this total force having been recruited about 14 months.

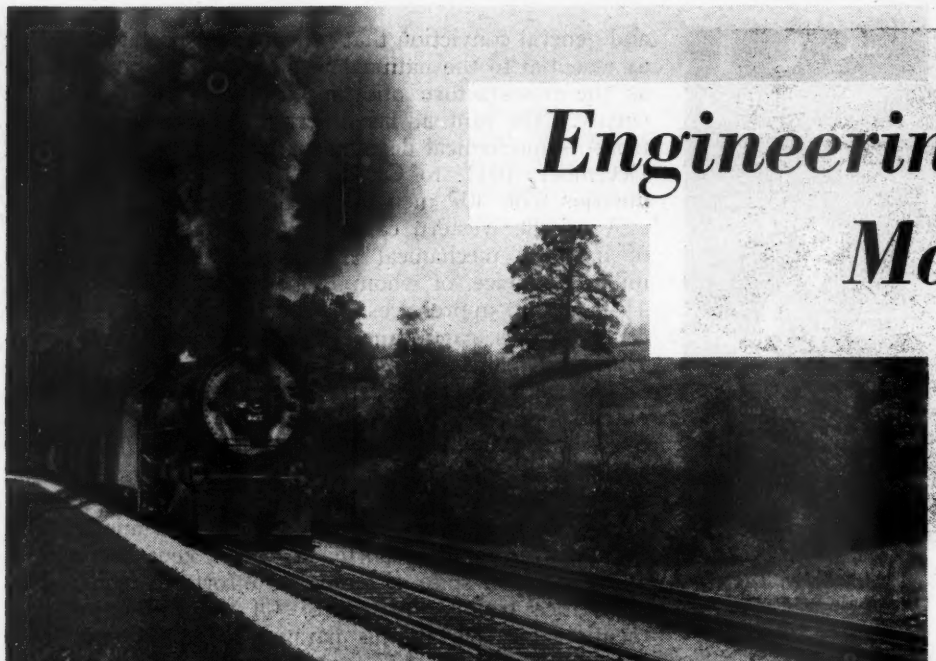
Another railroad reported a total of 81 women in mechanical department service on August 1, 1942, with 2,462 more hired between that time and October 31, 1943; in this same period 1,516 quit, leaving 1,027 still in service on the last day of October. If this experience can be considered typical, the turnover of women employees in railway mechanical work in 1943 has been exceptionally high, thus proportionately reducing their value for this type of work.

Another road, which employed 215 women on its eastern lines and 267 on its western lines, or a total of 482 in 1943, utilized them as steno-clerks, messengers, callers, office boys, coach cleaners, electrician helpers, machinist helpers, locomotive painter helpers, blacksmith helpers, pipefitter helpers, carpenter helpers, carmen helpers, upholsterer helpers, janitresses, firebuilders, lubricator fillers, supplymen, engine wipers, engine washers, cab cleaners, turntable operators, crane operators, tractor operators, cutting torch operators, laborers, and labor foremen.

In general, the railway mechanical departments were badly handicapped by labor shortages in 1943, which they attempted to relieve by every practicable means, including the making of agreements with labor organizations for the temporary promotion of apprentices and helpers to mechanics and laborers to helpers. Many roads went about as far as they could in this direction and found it extremely difficult to get replacements for apprentices, helpers and laborers and practically impossible in case of mechanics.

Engineering Officers Maintenance

In spite of record outlay for upkeep in 1943, and with construction activities at moderate level, the fixed properties deteriorated further under the impact of traffic—Problems of future claim increasing attention



Further Refinements in Track Construction and Maintenance Will Be Required on Many Lines for Faster Post-War Freight and Passenger Schedules

THE year 1943 was marked by an intensification of the efforts of the railroads to maintain their fixed properties in condition to carry the ever-increasing burden of war traffic—efforts that had to contend with obstacles that posed a constant threat to their success. At the same time, construction activities—also impeded by serious difficulties—were maintained at about the same rate that prevailed in 1942, being concerned primarily with the consummation of improvement projects of types designed to enhance the capacity and efficiency of the railroads in moving the record volume of traffic imposed on them. While engaged in these activities, and the unprecedented difficulties associated with them, construction and maintenance departments were approaching a cross-roads, where the problems brought on by wartime conditions will give way to the entirely different, but equally pressing, problems that inevitably will follow the coming of peace.

An Anomalous Situation

With reference to maintenance of way and structures activities, the year just closed was characterized by an anomalous situation. On the one hand, expenditures for such activities increased to record proportions, while, on the other, the condition of the tracks and structures showed further deterioration and, with respect to certain items, is now less satisfactory than during the depression years. This situation is no reflection on those responsible for the upkeep of the fixed properties; indeed, it is to the credit of maintenance officers that they have been able to maintain their properties in a condition so nearly adequate to the needs of the moment in the face of difficulties that, in some instances, have been only slightly less than insuperable. In view of these obstacles—shortages of manpower, materials and equipment, coupled with the punishing effect of a traffic load that broke all previous records—there could be no thought of improving the condition of the properties, or even of preventing their deterioration. The most that could be hoped for was to keep them in a reasonably safe condition, taking care of the weak spots first, awaiting changing conditions that would permit more adequate attention.

Further Analysis Required

During the first months of 1943, the railroads spent $876,871,272 for the maintenance of tracks and structures. At this rate it is estimated that for the entire year the expenditures in this category will approximate $1,070,000,000. Taking this figure at face value and without consideration of various underlying factors, it is the largest in history. It is more than 34 per cent larger than the $796,357,981 spent in 1942, is more than three times the amount that was spent in 1933, the low point of the depression, and is 26 per cent larger than the average of the five-year period, 1925 to 1929, inclusive. It established 1943 as the fifth consecutive year to show an increase in expenditures in this category, starting with 1938, when the figure was $420,147,000, or considerably less than half as much. One of the accompanying tables shows the annual expenditures for maintenance of way and structures of the Class I railroads for the 12 years ending with 1942, the latest year for which official figures are available, as well as the average annual expenditures for the 1925-1929 period; also included are figures showing the manner in which the total expenses for each year were distributed among the various primary accounts.

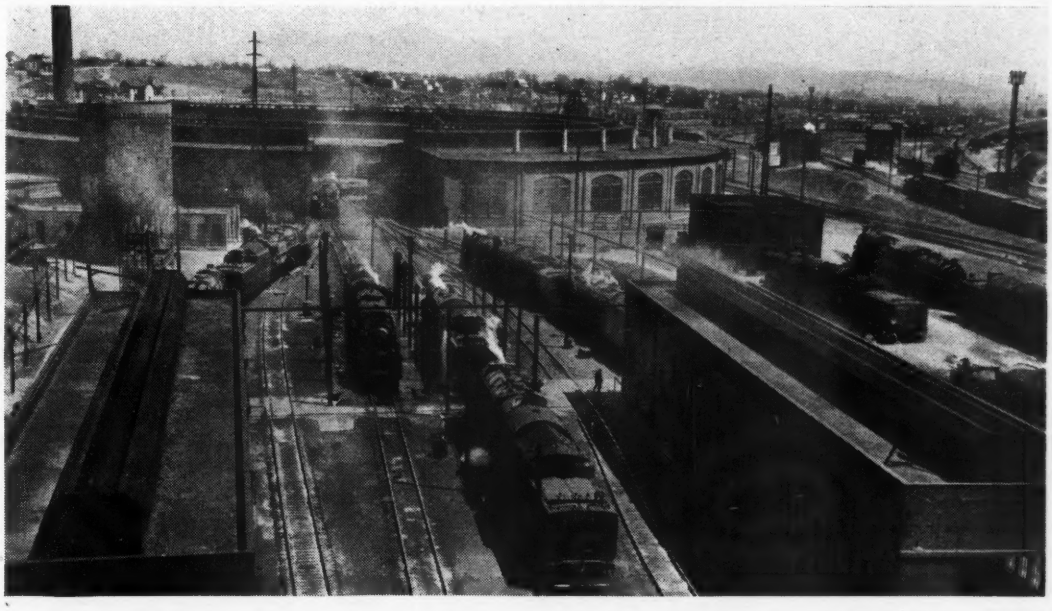
Ponder Post-War Task as Expenditures Reach New High

By Merwin H. Dick

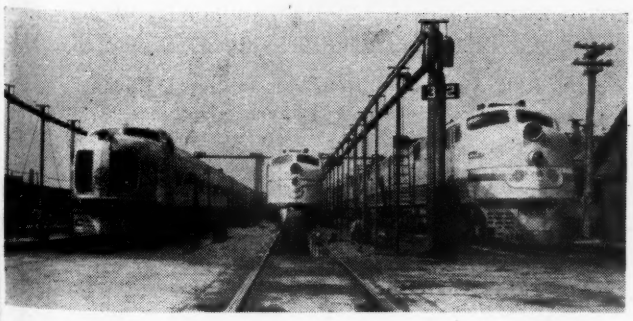
Eastern Engineering Editor

A closer examination, however, is needed to determine the true significance of the estimated expenditure for 1943. In the first place, in its relation to comparable expenditures for previous years, the 1943 figure is swelled by the inclusion of substantially larger charges for depreciation than had previously been the practice. This is a result of an order issued by the Interstate Commerce Commission making it mandatory for the roads to set up, beginning on January 1, 1943, a system of depreciation accounting for certain roadway property which, for the first 10 months of 1943, aggregated $87,922,926 as compared with $33,440,160 in the same period of 1942. Also included in the figure for 1943 is an indeterminate sum representing charges for deferred maintenance, that is, funds that the commission is permitting the roads to set aside for maintenance work that is currently needed but which they are unable to perform because of wartime conditions. That this figure is limited is due to government insistence that such reserves be taxed the same as profits. In 1942, a total of $5,759,912 was set aside for this purpose; for 1943, the amount may be somewhat larger.

However, even after allowing for charges to depreciation and deferred maintenance, it appears that the actual expenditures for maintenance in 1943 came very close to the billion dollar mark, in which event they still constitute a record except for the abnormal year of 1920. In ordinary circumstances, an expenditure of this amount would suffice to maintain the properties in satisfactory condition, with enough to spare to take up at least some deferred maintenance or to strengthen them against future emergencies. But in the year under consideration, influences were at work that detracted substantially from the effectiveness of the maintenance dollar. Among these were the generally higher cost of materials; the payment of increased amounts of pay at overtime rates;



The Revamping or Construction of Many New, Modern Terminal and Servicing Facilities Must Be Undertaken



the reduced efficiency of the maintenance labor that the roads found it necessary to employ in large numbers increased traffic density, resulting in greater loss of productive time due to passing trains; and the unbalanced nature of maintenance programs arising from necessary efforts to make up deficiencies in some classes of work by expanding others. These factors are indeterminate as to the extent of their influence, but it is beyond question that they have greatly reduced the effectiveness of the maintenance expenditures. Considering this fact in the light of the high rate of wear and tear imposed on the

A Continuation of Line Revision Programs to Reduce Grades or Curvature and Speed Up Freight and Passenger Schedules, Will Require Heavy Grading in Many Instances

Expenditures for Maintenance of Way and Structures, Class I Railways

(Thousands)

	Average 1925-1929 (Inclusive)	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
Superintendence	$57,262	$36,552	$31,921	$33,347	$35,605	$37,357	$39,801	$38,935	$39,072	$40,231	$43,407	$49,461
Roadway Maintenance	83,698	32,042	30,026	30,714	35,809	38,289	42,017	37,219	36,112	38,372	47,923	69,701
Tunnels	2,608	1,466	933	1,051	1,453	1,326	1,709	1,256	1,210	1,374	1,780	4,529
Bridges, culverts, etc.	43,471	19,434	17,627	20,139	22,646	24,032	26,268	24,200	24,782	26,514	31,754	40,801
Ties	114,859	50,294	43,543	50,748	51,936	56,315	59,799	53,762	59,910	58,353	64,928	75,141
Rails	47,402	13,762	14,324	15,418	16,302	21,192	20,412	17,406	22,065	22,736	24,684	25,199
Other Track Materials	48,354	15,726	15,362	18,694	20,959	26,732	30,228	22,817	29,670	33,428	38,711	40,091
Ballast	19,379	4,969	5,814	7,538	8,357	11,992	12,362	7,744	10,343	11,592	15,093	20,107
Track Laying and Surfacing	211,067	83,407	77,025	85,641	94,033	106,072	121,113	103,420	114,932	117,839	156,142	212,594
Fences and Snow Sheds	5,831	2,135	2,047	2,412	2,260	†3,397	†3,689	†2,939	†3,235	3,408	3,930	4,031
Crossings and Signs	13,115	6,468	5,969	7,293	7,186	*	*	*	*	*	*	*
Buildings	79,000	24,924	24,576	31,448	33,047	41,252	47,757	34,315	41,018	46,852	60,412	80,663
Water Supply	10,444	3,952	3,749	4,441	4,497	5,860	6,182	4,672	5,207	6,020	6,736	8,561
Tools and Equipment	18,230	7,917	8,051	10,666	11,044	13,452	15,408	11,456	13,720	15,434	18,971	20,892
Injuries	5,907	2,811	2,417	2,810	2,727	3,118	3,303	2,806	2,929	3,220	3,547	4,642
Removing Snow, Ice and Sand	9,947	4,699	4,188	5,630	7,001	13,365	6,655	5,239	6,110	9,030	5,995	8,739
Miscellaneous	78,449	40,621	34,714	37,310	39,105	51,059	58,891	51,961	56,516	29,202	79,076	131,206
	$849,021	$351,179	$322,286	$365,300	$393,967	$454,810	$495,594	$420,147	$466,831	$497,031	$603,088	$796,358

Note: Miscellaneous includes signals and interlocking, all charges for depreciation, deferred maintenance and unclassified items.
* Not shown separately since 1935. † Includes signs, as well as fences and snow sheds.

properties by a record volume of traffic, and remembering that the year 1943 followed hard on the heels of a decade of under-maintenance, it is not surprising that the tracks and structures suffered further loss of ground last year.

Rail Most Critical Item

Of all the elements of the track structure, rail continues to be the most critical item, and is likely to remain so as long as the railroads are not permitted to obtain quantities commensurate with the rate at which rail in track is now being worn out. In 1942, the roads estimated that they would require a minimum of 1,632,000 net tons of rails; they received 1,200,000 net tons. In 1943, they requested 2,100,000 net tons—and were allotted 1,527,000 net tons. Thus, the railroads are short one million tons of the amount of new rail that they estimated to be necessary to meet their minimum requirements for the two years. This point was made by C. H. Buford, vice-president, Association of American Railroads, in recent testimony before a Senate subcommittee, during which he said that the roads obtained only 78 per cent of their minimum needs for rail in 1942 and only 73 per cent in 1943.

One way to approach the requirements for new rail is to relate them to the gross ton-miles of traffic carried. In an accompanying table is shown the gross tons of rail that the Class I railroads have applied in renewals in each year since 1925. These roads laid an estimated total of 1,340,000 gross tons in 1943. While this is the largest tonnage laid in any year since 1930, its adequacy must be determined in the light of the wear and tear to which rail is now being subjected. Since the Class I roads carried approximately 1,900,000 million gross ton-miles

Rail Applied in Renewals—Class I Roads

	Gross Tons		Gross Tons
1925	1,950,146	1934	631,093
1926	2,209,873	1935	582,794
1927	2,124,765	1936	921,298
1928	2,080,277	1937	1,029,861
1929	1,958,489	1938	599,752
1930	1,517,002	1939	878,643
1931	984,900	1940	998,914
1932	394,536	1941	1,197,593
1933	403,254	1942	1,192,225
		1943	1,340,000*

* Estimated.

of traffic in 1943, it follows that the rail laid amounted to 0.70 gross tons per million gross ton-miles. For 1942, the relationship was about the same. In contrast, the railways laid an average of 1.55 gross tons of rail per million gross ton-miles of traffic in the ten-year period ending with 1931.

Failures Tell the Story

Even when allowance is made for the increased life of rail due to such factors as rail-end welding and hardening, it is only too readily apparent that the present allotments are falling far short of actual needs. That this statement is not based on statistics alone is demonstrated by the fact that the number of transverse fissures detected in track, as well as the number of service failures, have shown substantial increases paralleling the upsurge in traffic that has occurred since the war started.

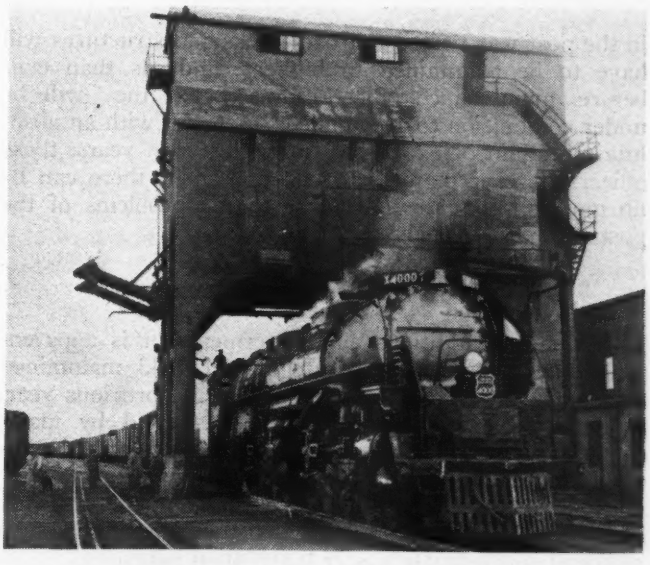
Present indications are that the railroads will fare somewhat better in 1944 with respect to their rail requirements than in either of the last two years. For the first quarter, they have been allotted 475,000 net tons (424,000 gross tons) of rail by the WPB, and the assurance has also been given that the minimum tonnage to be allocated during the year for new replacement rail will be 1,800,000 net tons (1,600,000 gross tons), barring unforeseen military requirements.

Ties Also Cause Concern

Crossties constitute another element of the track structure that is causing concern, especially as regards the possibilities for 1944. As shown in the accompanying table of annual crosstie renewals since 1925, the Class I roads inserted approximately 46,000,000 crossties in track in 1943. This was a reduction of about 2,616,000 ties, or 5.4 per cent, as compared with the previous year and a reduction of 1,225,000 ties, or about 2.6 per cent, as compared with 1941. For the 13-year period, 1931-1943, inclusive, the average renewals have amounted to about 44,800,000 crossties annually, which is only about 59 per cent of the average annual renewals for the six-year period ending with 1930. Even allowing for the fact that, owing to the wider use of treated ties and other methods of prolonging their life, ties now have a longer service life than formerly, it is still extremely questionable whether the tie condition in general has been restored to any considerable extent following the under maintenance of the depression period.

There are several reasons for the reduction in the number of crossties inserted in 1942 as compared with 1943. On some few roads, a reduction occurred because the tie situation was such as to make this justifiable. These roads, however, were in the minority. On the majority of lines showing fewer renewals, the decrease occurred either because larger supplies were not obtainable or because of a shortage of labor necessary to do the work—or possibly a combination of both was the deterring factor. In any event, the shortage of ties, having its origin in government pricing policies and a dearth of labor in the producing areas, is expected to reach more serious proportions in 1944. Although it is anticipated that the situation will be somewhat spotty, with improvement being shown in some areas, it is feared that it will grow worse in others, with the possibility that some roads may have to reduce their tie renewals as much as 50 per cent below requirements.

Regarding maintenance work in general, the year 1944 is expected to bring little, if any amelioration of the present difficulties, assuming continuance of the war on its present scale through the year. On the other hand, the global war, at least the European phase, is now in the stage where it could end unexpectedly. Thus, even now, while grappling with one set of problems, maintenance officers are already preparing to make a quick adaptation to the new and different problems that will confront them when peace comes. In the first place, the end of the war will find railway fixed properties in general in a greatly deteriorated condition, and it will be necessary to undertake extensive maintenance programs to restore them to the high standard that will be required if the railroads are to compete effectively in the speed, safety and comfort of their service with other transport agencies. Secondly, while recognizing that



The Trend Toward Modern Facilities for Taking Coal and Water Simultaneously, Located on the Main Line, Will Undoubtedly Be Continued After the War

Heavy Bridge Work Such as This, as Well as Large Rail-Laying Programs, May Be Expected When Steel Is No Longer Restricted

Crossties Applied in Renewals—Class I Roads

1925	82,716,674	1934	43,306,205
1926	80,745,509	1935	44,351,900
1927	78,340,182	1836	47,361,015
1928	77,370,491	1937	47,729,538
1929	74,679,375	1938	41,363,224
1930	63,353,828	1939	45,088,278
1931	51,501,659	1940	43,620,653
1932	39,190,473	1941	47,224,593
1933	37,295,716	1942	48,616,228
		1943	46,000,000*

* Estimated.

The Trend Toward Modern Passenger Stations and Facilities Will Undoubtedly Be Accelerated After the War

in the post-war period railroad tracks and structures will have to be maintained to higher standards than ever before, maintenance officers foresee that they will be under compulsion to accomplish this result with an absolute minimum of expense. In the last two years, these officers have accomplished the impossible; there can be no question that they will rise to the problems of the post-war period.

Expenditures for Improvements

Turning to additions and betterments, it is apparent that expenditures in this category in 1943 maintained the somewhat higher level reached in the previous year, although here again activity was restricted by material and labor shortages, and the inability of the railroads to obtain WPB approval of many projects they considered essential to more efficient operation. In March, 1943, it was estimated that the railroads planned to spend approximately $275,000,000 on improvements to their fixed properties during the year—improvements designed to assure their ability to handle the increasing burden of war traffic. Many of the projects comprising this total had to be deferred because of the reasons cited, but total expenditures for the year did not fall materially below the $185,500,000 expended in 1942. This compares with the expenditure of $175,453,000 in 1941. With the exception of 1937, this figure is, moreover, materially higher than for any other year since 1931.

Compared with pre-depression years, however, the expenditures for improvements in 1943 were still at a greatly reduced level. This is apparent when it is recalled that the annual gross expenditures of the Class I railroads for additions and betterments averaged $461,848,250 annually in the period from 1923 to 1930, inclusive, or considerably more than twice the figure for 1942. With the coming of the depression, the railroads found it necessary to effect a drastic curtailment in their expenditures for necessary improvements, with the result that the expenditures during the eleven-year period ending with 1941 averaged only $159,833,636 annually. This reduction occurred at a time when the railroads were desperately in need of improvements to increase efficiency and reduce operating expenses, and also to put into effect the higher train speeds and improved service needed to meet increased competition.

A Familiar Pattern

Engineering officers are only too familiar with this pattern of developments. The struggle of the depression years to obtain authorization for needed improvements is not easily forgotten. And when the onset of the war brought with it a rapid and steady increase in business, they began to hope that it would then be possible to bring about a proportionate increase in capital expenditures for projects that were long overdue. To a limited extent their hopes were fulfilled. But it quickly developed that the possibilities were to be greatly restricted by shortages of manpower and materials and by the inability to obtain authority for any improvement project that did not qualify as a direct aid to the war effort.

Under these conditions, the increased outlay for capital expenditures that has characterized the last two years has been composed almost entirely of expenditures for projects that conform to a certain pattern; that is, they are confined to undertakings that are designed to enhance the capacity of the roads to carry the burden of war traffic. These include yard enlargement and improvement projects to expedite the assembly and forwarding of trains; projects for expediting the movement of trains on the line, such as the construction of additional main and passing tracks, the strengthening of bridges to remove slow orders, and the elimination of tunnel restrictions; and improvements at engine terminals, designed to speed the handling of locomotives.

The fact that the railroads have been able to effect these improvements is a welcome circumstance, for in addition to furthering the war effort, most of them will continue to serve as necessary adjuncts to efficient operation during the post-war period. At the same time, it must be pointed out that a wide range of other projects of types designed to reduce operating expenses through increased efficiency, but not considered essential to the war effort, have been deferred during the emergency, and thereby have gone to swell the back-log of accumulated work from the depression period. Moreover, among the types of projects that the railroads have been permitted to carry on during the emergency, a great many of those submitted for the approval of the WPB have

been rejected, and these too must be added to the backlog of deferred work.

Thus, with respect to needed improvements, the situation of the railroads when the war ends will not be greatly different than when it started, except that, because of the increased competition, they will be under greater compulsion than ever to carry out projects designed to reduce operating expenses, to promote efficiency and to permit them to render a more attractive service to their patrons. The post-war problem, in fact, is impinging itself with increasing persistency on the minds of those responsible for the fixed properties, for they foresee the necessity for important changes if the railroads expect to retain their present position in the transportation picture.

Looking to the Post-War Period

With respect to passenger service it is generally taken for granted that train schedules must be shortened substantially if the railroads are to meet the competition that is expected to be offered on the highways and in the air. Primarily, it is the track, with its restricting curves, that is the limiting factor in higher speeds. Coincident with the advent of the streamlined trains scarcely a decade ago, a number of the railroads undertook extensive curve-reduction programs, for it was recognized that the maximum shortening of train schedules could only be obtained by reducing or eliminating slow-downs required by curved track. In fact, some of these programs were in progress at the time the war started, but had to be deferred because of the manpower shortage and other restrictive conditions. After the war ends, it is expected these will be revived and many others will be undertaken.

Curve-reduction work, however, is only one element in any program to prepare the tracks and other fixed properties for generally higher speeds for both passenger and freight trains. Restrictive bridges must be reinforced or replaced. Where necessary, the track structure in general must be strengthened and refined with heavier rail and fastenings, an adequate ballast section, and a well-drained roadbed maintained to the full standard dimensions. Also, the higher speeds will be facilitated, and the dependability of train schedules enhanced by the installation of centralized traffic control systems where indicated, the insertion of high-speed turnouts at strategic points, and the relocation and extension of passing sidings. In addition, the new operating conditions may necessitate the re-arrangement of signal circuits to lengthen the blocks.

Other Necessary Projects

Then there is a wide variety of other types of projects that will be necessary not only to improve operating efficiency and to support higher train speeds and better service but also to reduce operating expenses. These include the replacement or modernization of obsolete or poorly-arranged engine terminals and engine servicing facilities, the electrification and modernization of water pumping and treating plants, the revision of yard facilities where necessary to expedite the handling of cars, and the provision of additional facilities of various types where needed to take advantage of the availability of business or to adapt the properties to the new operating conditions that will prevail. Furthermore, the traveling public will demand that passenger-handling facilities be brought into harmony with the improved types of passenger equipment that will make their appearance, and to this end the need for the modernization of passenger stations and terminals will be widespread.

Engineering officers are keenly aware of the need for improvement undertakings of the types mentioned in the foregoing. In fact, some roads already have in the making plans for extensive improvement programs, but in at least some instances their preparation is currently proceeding slowly because of a lack of drafting-room personnel. There is little doubt that further, and much more serious, obstacles will be encountered in attempts to carry out post-war improvement projects on the scale dictated by competitive conditions, but in view of the spirit of determination evident on all sides to find a way to overcome these obstacles, there is no question that needed improvements will be forthcoming.

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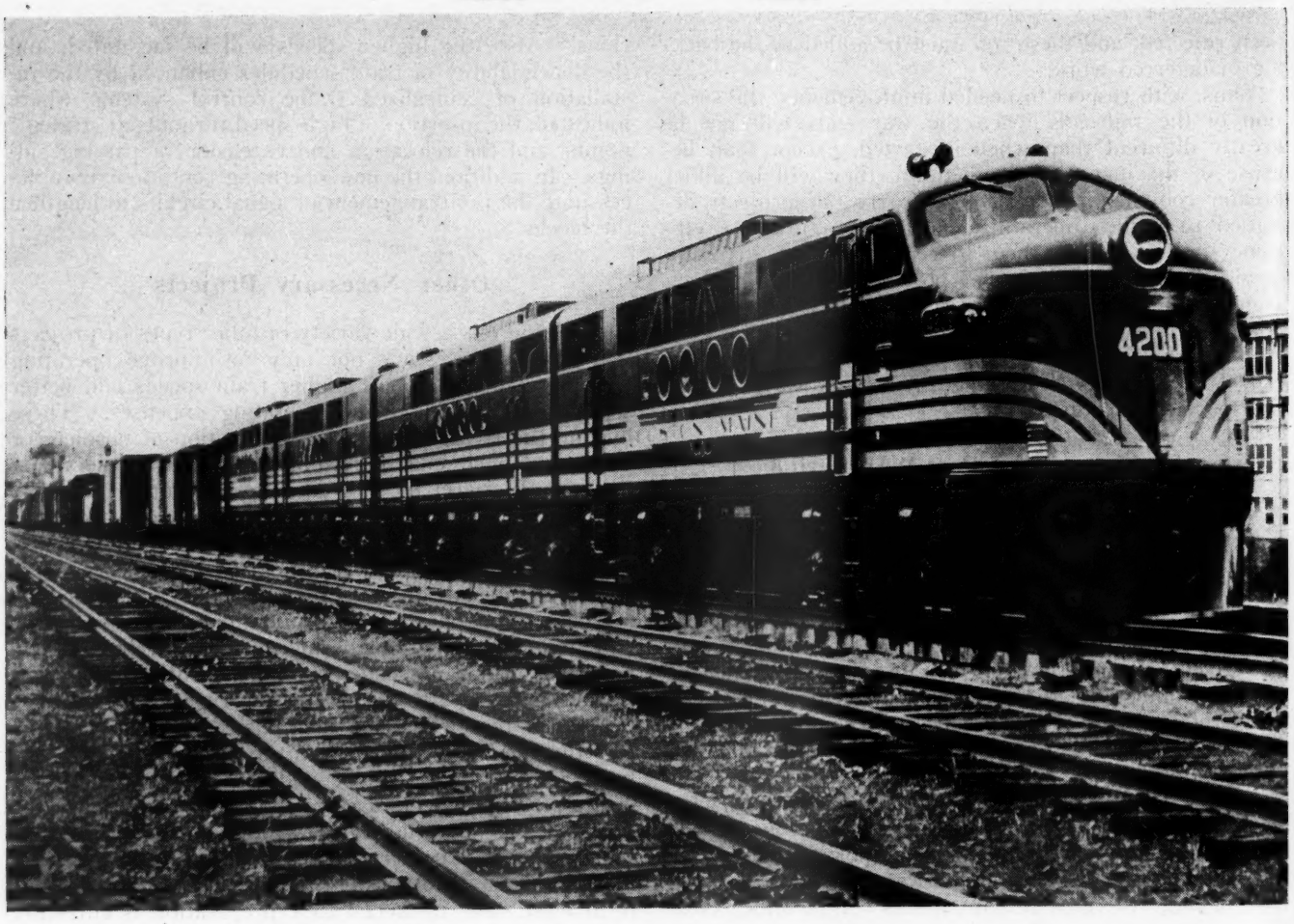
Material Handling Equipment in Milwaukee Supply Work



Locomotive Utilization Continues At Traffic Peak Rates

For 15 months freight and passenger business has required the use of more than 85 per cent of the locomotives—Further increases improbable

By H. C. Wilcox

Associate Editor

TWO years ago a question was proposed in an article in this publication as the subject of an analysis of the motive power situation on American railroads. The question was "Has the capacity of motive power reached the limit?" Based upon operating data then available and experience up to that time it appeared that the October peak traffic of 1941 was approaching the maximum that could be handled with the then existing motive power.

In that month and year 116.3 billion gross ton-miles of freight traffic was handled by 17,461 locomotives—79.5 per cent of the total—which ran 61.5 million locomotive-miles. An average of 77.6 gross ton-miles was handled for each 1,000 lb. of freight locomotive tractive force.

It was suggested at that time that 1,000 new freight locomotives would be needed to protect the expected war-time traffic increase and provide a reasonable margin of reserve. The demands of the defense program for materials such as would be needed for locomotive building and upon the builders' plants for war materiel other than locomotives prevented that program from being carried out with the result that less than 500 new road units were added to the inventory. This increased the freight motive power total tractive force only 33 million pounds or 2.5 per cent. At 77.6 g.t.m. per 1,000 lb. tractive force the potential hauling ability of this net increase was insignificant.

In the 24 ensuing months after October, 1941, there has been a transportation job done on our railroads that has not only astonished those outside the industry but is still causing many who are on the inside almost to disbelieve that which they know to be true. The story has been told so many times in two years that it is no longer news to talk about more intensive utilization, decreased

terminal time, greater hauling capacity of the newer locomotives and the ability of modern power to run heretofore unheard-of mileages between shopping for general repairs.

Where the October, 1941, traffic required 80 per cent of the motive power the September, 1943, traffic utilized 86 per cent of the road power and in that month there were only 488 stored road locomotives while 3,519 were in or awaiting shop, out of a total of 28,834. Here, in a few words, is the explanation of the manner in which the record-breaking traffic of all time was handled. The detailed performance statistics in Tables I and II show how, month by month, our reserve of power has been drawn on to handle the traffic in both passenger and freight service. In that month when the *average* freight locomotive was running 3,546 miles and the *average* passenger unit was running 6,500 miles the *modern* steam locomotive was making twice that monthly mileage. Some steam power was operating 24,000 miles a month in passenger service while Diesel-electrics, in freight service, were making 12,000 miles a month and 32,000 miles a month in passenger service. Thus, the oustanding performances of the less-than-10-year-old locomotives enabled them, as a group, to contribute immeasurably to the over-all accomplishments of the roads. The job that is being done by a relatively small proportion of the locomotive inventory is pointing the way to post-war economical rail transport that will enable the roads to meet the new competition if they will but avail themselves of the tools they now have at their command.

For 15 months ending with September, 1943, the roads have been using between 85.0 and 87.8 per cent of their motive power inventory with less than 2.0 per cent stored and the remainder in or awaiting shop. We venture to suggest that until the addition of new units substantially lowers the average age of the inventory this 15-month "plateau" of the traffic-handling ability of our railroad power plant is about as high as it will go.

Table I—Freight Locomotive Operation for 23-Month Period

1941	Total freight locos. 1	Un-service-able 2	Stored service-able 3	Active 4	Active locos., per cent total locos. 5	Aggregate tractive force (000) 6	Loco. miles (000) 7	G.t.m. (excl. loco. and tender) (000,000) 8	Freight-train miles (000) 9	Loco. miles per active loco. 10	Loco. miles per total locos. 11	Loco. miles per freight-train-mile 12	G.t.m. per 1,000 lb. trac-tive force (000) 13	G.t.m per train-mile 14
November	21,774	4,350	1,049	16,375	75.2	1,500,393	56,893	106,241	49,924	3,474	2,613	1.14	70.8	2,151
December	21,776	3,406	1,071	17,299	79.8	1,501,223	57,323	102,957	50,231	3,256	2,632	1.14	68.6	2,073
1942														
January	21,888	3,253	926	17,709	81.0	1,503,056	59,461	106,532	51,930	3,358	2,717	1.15	70.8	2,075
February	21,841	3,238	916	16,687	81.0	1,503,449	55,030	100,489	38,031	3,111	2,520	1.15	66.8	2,115
March	21,920	3,141	740	18,039	82.3	1,505,308	62,087	117,851	53,124	3,442	2,832	1.15	78.2	2,200
April	21,915	3,119	688	18,108	82.6	1,506,402	62,128	120,725	53,921	3,431	2,835	1.15	80.2	2,264
May	21,963	2,995	612	18,356	83.6	1,507,934	65,385	130,070	56,558	3,562	2,977	1.16	86.2	2,325
June	21,927	2,888	549	18,490	84.3	1,513,015	63,292	125,959	54,711	3,423	2,887	1.16	83.3	2,328
July	21,923	2,744	527	18,652	85.7	1,513,670	66,197	132,089	57,193	3,548	3,020	1.16	87.1	2,336
August	22,028	2,844	475	18,709	85.0	1,515,741	67,389	135,972	58,136	3,602	3,059	1.16	89.8	2,366
September	22,075	2,705	367	19,003	86.1	1,518,757	66,716	134,166	57,625	3,511	3,022	1.16	88.3	2,356
October	22,027	2,344	340	19,343	87.8	1,531,031	70,461	141,880	60,717	3,642	3,198	1.16	92.7	2,365
November	21,981	2,650	385	18,946	86.1	1,536,847	65,604	129,984	56,603	3,462	2,984	1.16	92.5	2,324
December	21,934	2,507	373	19,054	86.8	1,540,107	66,338	125,137	57,295	3,481	3,024	1.16	81.5	2,214
1943														
January	21,974	2,509	352	19,113	86.9	1,543,640	67,152	126,930	57,866	3,514	3,056	1.16	82.0	2,206
February	22,048	2,621	297	19,130	86.7	1,545,424	62,962	121,919	54,246	3,291	2,855	1.16	79.0	2,277
March	22,075	2,676	282	19,117	86.6	1,549,616	70,103	137,148	60,344	3,667	3,175	1.16	88.5	2,203
April	22,030	2,585	283	19,162	86.9	1,552,647	67,524	134,883	58,295	3,523	3,065	1.16	86.6	2,343
May	22,067	2,593	364	19,110	86.5	1,555,310	69,491	141,453	59,801	3,636	3,149	1.16	91.0	2,398
June	22,096	2,595	376	19,125	86.5	1,555,660	66,071	132,549	57,110	3,454	2,990	1.16	85.0	2,352
July	22,083	2,471	406	19,206	86.9	1,560,553	69,311	143,567	59,758	3,608	3,138	1.16	92.0	2,435
August	22,031	2,677	395	18,959	86.0	1,565,379	69,296	144,816	59,711	3,655	3,145	1.16	92.5	2,458
September	22,107	2,666	355	19,086	86.3	1,568,029	67,680	140,771	58,372	3,546	3,061	1.16	89.5	2,443

Note: Data from I.C.C. Bureau of Statistics, Freight Train Performance of Class I Steam Railways in the United States (Statement No. M-211 OS-A) and Motive Power and Car Equipment of Class I Steam Railways in the United States (Statement No. M-240 OS-F). Aggregate tractive force based on A.A.R. Car Service Division Form CS-56A-1.

Table II—Statistics of Motive Power Assigned to Passenger Service

1942	Total locos. 1	Service-able 2	Un-Service-able 3	Stored 4	Per cent active to total 5	Miles per active loco. per day 6	Pass. loco.-miles (000) 7	Pass. train miles (000) 8
October	6,684	5,636	871	177	84.2	212.0	36,838	33,092
November	6,674	5,646	849	179	84.7	216.1	36,490	32,683
December	6,758	5,949	665	144	87.2	226.0	40,531	36,498
1943								
January	6,765	5,807	794	164	85.9	214.6	39,003	34,966
February	6,718	5,750	796	172	85.5	218.0	35,194	31,630
March	6,717	5,779	798	140	86.0	220.7	39,350	35,355
April	6,705	5,764	802	139	86.1	218.6	37,770	33,954
May	6,723	5,781	794	148	86.1	213.2	38,061	34,259
June	6,687	5,702	839	146	85.3	219.5	37,730	33,968
July	6,717	5,763	811	143	85.9	223.9	39,704	35,685
August	6,738	5,770	842	126	85.5	226.2	40,350	36,227
September	6,727	5,741	853	133	85.3	224.3	38,643	34,795

Note: The above taken from I.C.C. Passenger Train Performance Statistics, Statements No. M-213 and M-240.

Shortages—Car or Locomotive?

We have reached a point, within the past year, where car shortages have existed. There are several contributing factors to these shortages but there is a question in the minds of some students of this subject as to whether or not they may not reflect, among other factors, motive power shortages. There are still potential improvements in car usage that can improve the car situation but at this moment motive power appears to be a limiting factor. The addition of about 1,000 new locomotives in 1943

has helped to maintain a high traffic rate but there are conditions appearing on the horizon that call for immediate action.

Fortunately there are compensating improvements that may operate to simplify future problems but the real test appears to be in the winter months just ahead. During the next 90 days when cold weather will reduce tonnages and complicate road and terminal problems we are going to find out whether or not we have reached the capacity limit, for it is believed that the percentage of active locomotives to total cannot be raised much above the 89 per cent level.

There are over 4,000 locomotives now being used in yard operations that were not designed for that class of service. The further installation of a substantial number of switchers would release some of this power for road service.

Leased Power Has Helped

Approximately 300 leased locomotives, moving from road to road, are relieving local power shortages and a continued expansion of cooperation of this character, in which the individual roads, the A. A. R. and O. D. T. have worked hand-in-hand, will help to expedite the movement of many hundreds of cars.

In the absence of deliveries of needed new power the burden of motive power supply has naturally fallen on the enginehouse and the back shop. Intensive study is continuing with a view to reducing terminal turning time but both the manpower and material situation are creating difficulties

Particularly acute is the need for improvement in fire cleaning, ash handling and coaling.

The shortage of manpower is requiring the services of many skilled enginehouse men to be diverted to the always difficult job of getting engines over the pit and into the house.

New Tools Now Available

Fortunately the back shops are in a more favorable position with respect to the ability to acquire much-needed new shop tools but there are definite shortages in castings, particularly cylinders, piston and valve rings, motion work, rods, bushings and some specialties, such as injectors.

In many of these items the limiting output of obsolete shop tools is beginning to show up at a time when great increases in locomotive miles are naturally wearing out parts at an accelerated rate.

Not the least encouraging factor in the locomotive situation is a very definite change in the attitude of those controlling the allocation of materials with respect to the problems of the railroads. No longer are they looked upon as a "civilian" industry but, rightly so, as an indispensable part of the vast machine with which we are prosecuting the war.

Freight-Car Needs Exceed Supply

Little change in loadings but each loaded car moved more than 70 miles farther—Additions to the car supply during 1943 disappointing

By C. B. Peck
Mechanical Department Editor

1943 Car Shortages and Surpluses—All Districts of the United States

For all weeks, to the end of November, for which shortages were reported — Source: CS 44A

Week ended	All box cars		Flat cars		Gons. and hoppers		All others		Total	
	Shortages	Surpluses	Shortages	Surpluses	Shortages	Surpluses	Shortages	Surpluses	Shortages	Surpluses
March 13	943	15,656	33	1,143	146	7,980	194	11,914	1,316	36,693
March 27	504	15,308	15	1,259	226	6,854	..	11,736	745	35,157
April 3	283	14,550	28	1,077	90	7,088	..	11,666	401	34,381
April 10	121	15,301	39	1,043	133	8,039	..	11,771	283	36,154
April 17	160	15,428	39	860	663	6,361	..	11,839	862	34,488
April 24	110	16,250	37	1,006	40	6,328	..	11,519	187	35,103
July 31	963	10,799	..	923	57	3,961	..	14,104	1,020	29,787
Aug. 7	1,306	10,132	..	748	40	3,909	..	12,520	1,346	27,309
Aug. 14	1,297	9,936	..	899	..	3,652	..	12,521	1,297	27,008
Aug. 21	1,377	10,005	..	955	21	3,813	..	11,052	1,398	25,825
Aug. 28	1,496	8,577	..	726	..	3,861	..	11,253	1,496	24,417
Sept. 4	789	6,731	..	744	29	3,381	..	8,657	818	19,513
Sept. 11	1,908	7,716	..	813	60	3,387	..	8,304	1,968	20,220
Sept. 18	2,711	7,870	5	858	145	4,245	..	8,456	2,861	21,429
Sept. 25	2,273	6,802	5	887	40	3,532	14	8,312	2,332	19,533
Oct. 2	3,554	5,646	..	841	86	3,652	..	7,355	3,640	17,494
Oct. 9	2,817	5,179	50	473	60	2,867	..	7,513	2,927	16,032
Oct. 16	2,978	4,813	47	538	60	2,707	..	6,185	3,085	14,243
Oct. 23	4,107	4,300	84	564	70	2,969	..	5,737	4,261	13,570
Oct. 30	4,662	4,019	45	593	72	7,689	..	5,859	4,779	18,160
Nov. 6	4,953	4,253	40	427	20	56,993	..	5,855	5,013	67,528
Nov. 13	3,478	5,158	50	521	..	33,629	..	6,233	3,528	45,541
Nov. 20	4,018	4,720	7	389	40	10,177	..	6,952	4,065	22,238
Nov. 27	4,055	4,045	9	365	115	3,080	..	9,271	4,179	16,761

FOR the first time since 1937 there were well defined and persistent car shortages during a considerable part of 1943—evidence that the facilities of the railways for moving freight had at last entered the overload zone. A further indication of the strain on the car supply is found in the reduction of surpluses of railroad-owned cars almost to the vanishing point. For seven weeks during September and October, 1943, surpluses were under 20,000, with a low of 13,570 for the week ended October 23. In 1942 the lowest figure was 30,400 at the end of the October and surpluses of fewer than 50,000 cars were reported for eight weeks during the Fall.

Interstate Commerce Commission reports show a net increase in ownership by Class I railways during the year ended September 30 last of 12,475 freight cars. Comparing cars on line, however, there was a reduction in total cars of 19,570 and in serviceable cars of 21,833. There has been no appreciable change in the bad-order situation which, up to November 1, had risen above 3 per cent of total cars on line during but one reporting period.

Total carloadings for the year (the last two weeks estimated) were 42,347,000, a decline of slightly more than 1 per cent, or 473,000 cars, from 1942. Total loadings of car-load freight increased some 60,000.

There were two respects in which the traffic handled in 1943 placed heavier burdens on the car supply than during the preceding year. These are the increases in average length of haul and the phenomenal increase in grain movement.

During the first nine months of 1942 the average movement of each freight car per loading cycle was 783 miles, of which 490 were loaded and 293 empty. Each such trip required an average of 16.5 serviceable car days. During the same period of 1943 these cycles averaged 854 miles (an increase of 9 per cent), of which 543 were loaded and 311 empty. Each of these trips required an average of 17.1 serviceable car days, an increase of 3 per cent over 1942.

Because of a reduction in the average freight-train speed from 16 miles an hour during the nine months of 1942 to 15.5 during 1943, the time moving in trains increased 13½ per cent—from 2.04 to 2.32 days, proportionately a much greater increase than in the standing time.

The utilization of cars was also increased in 1943 by a heavier average load, which increased from 31.4 to 33.5 tons to produce an overall performance of 1,036 net ton-miles per car day, an increase of 130 or 14.4 per cent, over the average for 1942. Thus, with relatively little overall change in total carloadings, the railroads were able to handle an increase of 16 per cent in net ton-miles during the first nine months of the year.

The outstanding change in the pattern of freight movement during 1943 occurred in the grain and grain products classification. Prior to 1942 the customary movement of grain was slow until mid-Summer, at which time there was a sharp peak which fell off for a part of its height as rapidly as it rose and then declined gradually during most of the remainder of the year. In 1942 a January peak was followed by the usual low level and a relatively low mid-Summer peak with a sustained relatively high level of loadings during the

remainder of the year. During 1943 grain loadings were much higher than normal throughout the year, including high peaks in mid-Summer and again in October. Total grain loadings for the year exceeded those of 1942 by over 22 per cent. The number of cars which could be accumulated for this movement was limited by the unprecedented demand for high-grade cars to protect loading of war freight and lend-lease supplies.

While these shortages have caused inconveniences on the farms and at the country elevators, they cannot be said to have handicapped the national war effort or to have caused serious permanent loss to the nation. Indeed, it may be questioned whether in some cases the high rate at which grain moved during 1943 did not tax the unloading capacity of the terminal elevators which, in turn, limited the intensity of utilization of the available supply of grain cars. It may be further questioned whether some of the car shortages may not have indirectly resulted from the strain on the motive-power supply.

The carloadings in the miscellaneous classification were about 1 per cent lower during 1943 than during 1942. This classification, which comprises most of the products of industry and some products of mines, is most directly responsive to changes in the level of industrial activity. Only to the extent that the tons per average car load of miscellaneous freight increased does this reflect an increase in the general level of productive activity of the nation. The average car load of all classifications combined increased 6.5 per cent. This reflects the marked increase in the l.c.l. car load, which began to take place during the second quarter of 1942 and was in full effect throughout 1943. The average miscellaneous car load, therefore, increased somewhat less than 6.5 per cent. But even if it is assumed that it increased by the full 6.5 per cent, the tonnage increase of about 5.6 per cent thus arrived at compares with an increase of over 19 per cent from 1941 to 1942 and suggests a close approach in 1943 to the ultimate productive capacity of the United States, with present resources of labor and facilities.

In considering the needs for new freight cars, and the prospects for getting new cars to meet 1944 traffic demands two factors are of major importance. The first is the prospective demands which the railroads will have to face. The second are the probable limitations on the number of new cars which it will be physically possible for the railroads to secure.

The trend of traffic growth since 1941 indicates a flattening of the curve and suggests that the increase in volume during 1944, if any, will be considerably smaller than the increase of 1943 over 1942. Should the estimate of 2 to 5 per cent increase in revenue ton-miles in the transportation report of the Truman Committee prove to be correct, there will probably be relatively little increase in total car loads. Indeed, should the present trend in the average haul and the average car load continue, there might be an appreciable decrease. But this is scarcely likely to decrease the demand on the freight-car supply. There are two reasons for this. First, continued reduction of oil loadings to the Atlantic seaboard, which passed its peak last Summer, will not reduce the pressure on either box or open-top cars; second, a possible increase in the relative volume of war traffic to the Pacific coast may still further increase the average haul.

That the railroads can expect to receive more than 50,000 new cars, seems doubtful irrespective of the liberality of WPB allocations, since the available plant and manpower capacity of the builders could scarcely turn out more than that number of cars for domestic use. Prospects are considerably brighter, however, that allocations will be translated into actual construction much more promptly and completely next year than they were during 1943.

Instances are still reported where shippers and consignees run into demurrage time in loading and unloading and where cars are allowed to stand idle in railway yards for days beyond the minimum time required for handling. No doubt some further tightening up on this slack can be effected next year. But it is precisely at these points, at which the railroads, with the energetic cooperation of shippers, have been able to make the amazing improvements in the effectiveness of car utilization that have been chronicled in these articles for the past three years.

It is time to take cognizance of the law of diminishing returns, which will take increasing effect each year. Indeed, that should have been done a year ago.

Trend of Freight-Car Performance Class I Railways Since 1941

	First Nine Months		
	1941	1942	1943
Net ton-miles (000,000)	372,800	497,082	576,262
Total cars loaded	31,388,484	32,367,431	31,705,292
Total freight car-miles (000)	20,627	25,276	27,013
Loaded freight car-miles (000)	13,183	15,840	17,197
Cars on line Sept. 30:			
Serviceable	1,796,548	1,949,822	1,987,897
Unserviceable	95,533	59,817	49,708
Total	1,892,081	2,009,639	2,037,605
No. cars owned	1,675,042	1,739,614	1,756,533
Avg. car load, tons	28.3	31.4	33.5
Avg. miles per serviceable car day	42.0	47.5	49.8
Avg. miles per car day all cars	39.9	46.1	48.6
Avg. train miles per train hour	16.6	16.0	15.5
Car-miles per loading cycle:			
Total	659	783	854
Loaded	420	490	543
Empty	239	293	311
Avg. serviceable car days per loading cycle:			
Total	15.7	16.5	17.1
Moving in trains	1.65	2.04	2.32
Loading, unloading, switching, standing in yards, etc.	14.05	14.46	14.78
Avg. unserviceable car time in hours, per loading cycle	19.2	9.6	9.6
Net ton-miles per car day	722	906	1,036

The Pattern of Freight-Car Demand—1942-1943

(Carloadings, in Thousands, by Commodity Groups in Quarters)

Commodity group	First quarter			Second quarter			Third quarter			Fourth quarter			Annual totals		
	1942	1943	Inc. or dec. (–)	1942	1943	Inc. or dec. (–)	1942	1943	Inc. or dec. (–)	1942	1943	Inc. or dec. (–)	1942	1943*	Inc. or dec. (–)
Grain and grain products	508	626	118	468	584	116	609	730	121	591	711	120	2,176	2,651	475
Live stock	149	169	20	157	178	21	179	205	26	258	282	24	743	834	91
Coal	2,036	2,202	166	2,136	1,915	–221	2,090	2,254	164	2,099	2,103	4	8,361	8,474	113
Coke	184	196	12	182	180	– 2	189	184	– 4	185	198	13	731	758	27
Forest products	577	496	– 81	646	566	– 80	672	596	– 76	556	559	3	2,451	2,217	–234
Ore	193	189	– 4	1,014	789	–225	1,139	1,146	7	669	695	26	3,015	2,819	–196
Miscellaneous	4,617	4,603	– 14	4,908	4,954	46	5,165	5,005	–160	5,067	4,982	– 85	19,757	19,544	–213
Total car loads	8,264	8,481	217	9,511	9,166	–345	10,034	10,120	86	9,425	9,530	105	37,234	37,297	63
Merchandise l.c.l.	1,892	1,180	–712	1,395	1,271	–124	1,142	1,287	145	1,156	1,311	155	5,585	5,049	536

* Last two weeks of 1943 estimated.

Railroads Continue to Pack 'Em In

Since 1920 passengers per coach and coach miles per day have each practically doubled

By C. B. Peck

Mechanical Department Editor

NO PART of the facilities of the railroads in the United States have been subjected to greater increases in the demand calling for increased intensity of utilization than has the passenger rolling stock. This applies both to passenger-train cars of railroad ownership as well as to Pullman-owned sleeping and parlor cars.

Travel Revival Pre-Dated the War

Immediately after 1920, which was a record year for passenger travel, there began the long and rapid decline of railway travel which reduced total passenger-miles in 1938 at the bottom of the curve to a mere 46.3 per cent of its volume in 1920. By 1941 passenger-miles had been restored to 62.5 per cent of the volume of 1920; in 1942 passenger-mile volume exceeded the 1920 figure by about 15 per cent, and in 1943 exceeded 1920 by not less than 80 per cent.

At the end of 1920 there were 32,731 coaches and coach-combination cars in service on the Class I railroads; in 1943, there were 20,388. In 1920, there were over 8,800 parlor and sleeping cars of Pullman and railway ownership; in 1943, these cars totaled 7,500. In 1920, there were 18,309 mail-baggage-express and non-passenger combination cars, and in 1943, 15,700.

In only one respect did the passenger traffic of 1920 place more of a load on the equipment than that of 1943. The number of passengers carried in 1920 exceeded the total number carried in 1943 by about 50 per cent. This was before local passenger service had left the railways for the highways and the average miles per passenger per road were 37.9 in that year. For 1943 the average will be well above 100 miles. The long-distance character of wartime traffic may be seen by comparing the 1943 average with the 60.3 miles per passenger in 1941 and the 80.2 miles per passenger in 1942.

Upward Trend in Coach Travel

The extent to which the railway coach has become a vehicle for long-distance travel during the war is indicated by the upward trend in the miles per coach passenger other than commutation since 1941. From 70 miles in that year the average increased to 87.8 in 1942 and some indication of the increase during 1943 may be seen by comparing the month of July for the three years 1941 to 1943, inclusive, for which the miles per coach passenger were 75.7, 84, and 108.6, respectively.

Pullman traffic has been affected likewise and the average Pullman passenger trip has increased from 379.4 miles in 1941 to 398.4 in 1942, and again to 427.7 in July, 1943.

The intensity of utilization of railway coaches and sleeping and parlor cars is indicated, first, by the sharp increase in car-miles which has taken place during the past three years, and again by a look back at the now almost unbelievably easy time enjoyed by the equipment in the peak year of 1920. During 1941 the coach and coach combination cars of Class I railways averaged 140 miles per car day. This increased to 172 in 1942 and, comparing July of 1943 with July of the preceding year, it increased from 177 miles per car day to 238. There has been an increase in sleeping- and parlor-car movement from 319 miles per car day in 1941 to over 441 car-miles per car day in 1943. The daily mileage of mail, express and baggage cars averaged 163 per car day in 1941; they traveled 176 miles per car day in July, 1943. In 1920 coach and coach combination cars averaged 121 miles per day; sleeping and parlor cars 241 miles per day, and mail, express and baggage cars 170 miles per day.

Thus, it will be seen that the daily mileage of passenger-carrying cars, both coach, and sleeping and parlor cars, has practically doubled since 1920.

The average passenger-miles per railroad passenger-carrying car-mile in 1920 was about 21. During 1941 the average was less by two passengers; in July, 1943, the number had grown to 41.3.

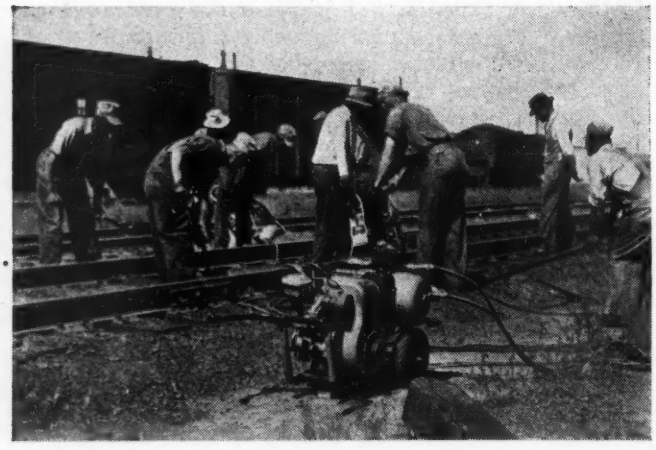
The difference in the intensity of Pullman car use has not been so spectacular. In 1920 the average was 17.7 passenger-miles per Pullman-owned sleeping and parlor car-mile. In 1943 this average had dropped down to less than 11. In July, 1943, however, it had reached a fraction over 20—representing about 80 per cent of the maximum possible passenger-miles if every berth and seat on every parlor and sleeping car in operation on every line in the United States were occupied for every car-mile.

New Cars Are a War Need

In these figures are reflected the intensity of utilization of passenger-train cars which has gone far beyond the limit of convenience and comfort for the traveling public on all of the principal rail routes. As a war measure, such utilization is, of course, thoroughly justified. But there is little reserve capacity for carrying any appreciable increase in the present load. The 1,200 troop sleeping cars now being delivered will help but in a relatively small way. There is need of a substantial increase in railway-owner passenger-carrying cars to meet the tremendous civilian passenger movement created by the army training policy which subjects men to several long-distance transfers within the period of their training and thereby creates a corresponding civilian movement among families of men in the military forces, and by the heavy increase in business travel created by wartime changes in industrial and commercial activities.

WORK EQUIPMENT

aids in relief of war-time labor shortage



Small Tamping Units for Section Use Are Filling a Widespread Need Today

Many of the problems created by extreme deficiencies in men are being solved in part by power machines and tools in roadway maintenance

By George E. Boyd

Associate Editor

IF IT were not for work equipment, the railways would be in a much more serious position than they now are with respect to the maintenance of their tracks and structures. While power machines and tools cannot be made a complete substitute for man-power, the extent to which maintenance operations have already been mechanized has enabled roadway officers to keep both tracks and structures more nearly to the standards necessary to carry the extraordinary traffic that is now moving over them, despite the extreme shortage of labor.

Conditions During World War I

To appreciate fully the value of work equipment in maintenance generally, and the contribution that it is making at this time in particular, one needs only compare the labor conditions that prevailed during World War I with those of today. and consider how the problems that are now confronting maintenance officers could be solved if they were dependent on the relatively few power machines that were then available.

At the outbreak of World War I, only a few types of work equipment had been developed and, except for motor cars, practically all of them were steam driven. Those that were available consisted generally of the larger units, such as pile drivers, bridge derricks, spreaders, steam shovels, locomotive cranes, ditchers and lidgerwoods, all on-track machines. At that time, the pneumatic tie tamper had scarcely passed the experimental stage.

As the supply of labor dwindled through inductions into the armed forces and migration to war industries, the shortage became so acute that it stimulated the development of power machines that could take the place, to some extent, of the men who had been lost from these causes. However, few of these machines were developed to the stage where they became helpful during the war-induced labor shortage of 1917-18, and it is a matter of history that many miles of important main tracks suffered severe deterioration largely because of insufficient labor to maintain them.

Essential changes were also taking place in maintenance practices. As rail sections became heavier, they could no longer be handled by hand with safety, and the rail crane thus became a necessity. The rail gangs of the day were not organized for mechanized operation, however, and this unit unbalanced the operation to such an extent that more men were required to uncouple the rail, pull the spikes and adze the ties in advance of the new rail, and more bolters and spikers were needed to keep up with the rail crane, and thus permit it to be used to capacity.

As a result, these units of the gang increased to such size that they became unwieldy and created confusion. This brought about a demand for other machines, which was met by the bolt tightener, the spike puller, the adzing machine, the cutting torch and the spike driver. As these later machines became available, although it was more than a decade before they did, it became possible to synchronize the various tasks so that the operation was again brought into balance and all units could move forward in unison. Rail laying then became a task for large fully-mechanized gangs.

The tie tamper had an equally profound effect on maintenance practices and the maintenance organization, for it transferred general surfacing from the section gangs to large extra gangs, which could assure a high-use factor for the equipment. This development, together with treated ties, improved drainage, better ballast and heavier rail, affected the work of the section gang to such an extent that it became feasible to extend the section limits. As a corollary, however, there arose a demand for smaller, less expensive and less cumbersome tie-tamping equipment that could be used by section gangs for routine surfacing, and in recent years this demand has been met by a variety of smaller units suited for this purpose.

Older Machines Were Cumbersome

One of the outstanding characteristics of the early power machines was their large size and heavy weight, making them cumbersome and difficult to handle. Many of the original models were poorly designed and crudely constructed, so that their mechanical efficiency was low.

Important parts were inaccessible and it was often necessary practically to dismantle a machine before a worn or broken part could be replaced. Not a few of these machines were designed by persons who were not familiar with the tasks they were to perform, and others were designed for general rather than specific purposes, for which reasons they did not prove to be satisfactory in service.

The result of these deficiencies was that many of the early machines did not survive, and those that did were redesigned and developed further, as experience and use disclosed their weaknesses.

Despite these drawbacks and the reluctance sometimes exhibited by maintenance officers to adopt power machines, other forward-looking officers saw the advantages of mechanization in maintenance, and stimulated the development of power machines and tools in various ways.

It is to them, therefore, and to those manufacturers who responded to their suggestions, that credit is due for the remarkable development that has taken place in this field.

Two Other Difficulties Overcome

Two other important difficulties had to be overcome before work equipment, as a whole, was able to assume its rightful place in maintenance. From the beginning of the railways, every operation had been done manually, except pile driving, the lifting of heavy loads and similar tasks that could not be done by hand. When work equipment was introduced, and for many years thereafter, a great many maintenance officers attempted to adapt the machines to the existing organizations and practices, rather than to revise the organizations and practices to suit the requirements of the equipment. For this reason, through no fault of their own, the results obtained from many of the units in service were far from satisfactory. So persistent are established habits of thought, however, that it was not until a new generation of railway officers arose that this difficulty was entirely overcome.

The second obstacle to a wider use of work equipment during the period of its introduction was the lack of an organization and facilities to maintain it dependably. The maintenance of the heavier units which preceded the great variety of smaller machines, had always been assigned to the mechanical department, as they still are today on most roads if steam driven or if they are classified as MCB equipment. Neither the mechanical nor the maintenance-of-way department was familiar with the internal-combustion engine with which both motor cars and the smaller machines were being equipped, and which soon came into use on many of the larger units. It became necessary, therefore, to build an organization and provide facilities to maintain the equipment in the field and repair it in the shop. Today, this organization and these facilities have been developed to the point where the power machines used in maintenance are as dependable as any other mechanical units in service on the railways.

Wide Diversity of Designs

In no other fields, except the automobile and the air plane, have developments been more rapid than in work equipment, and in neither of these fields is there such a diversity of designs to meet a still wider diversity of conditions. Work equipment units range in size from pile drivers, locomotive cranes, spreader-ditchers, snow plows and draglines, to small hand-operated power-driven tools, such as saws, wood borers, drills, riveting hammers and other similar units. When this development began, less than 20 types were in common use; today more than 10 times this number are available, with considerable variation in design within some of the individual types, and the end is not yet in sight.

In recent years, a better appreciation of the value of work equipment has arisen, partly out of the experience of the depression years, during which maintenance officers learned to utilize it to supplement their depleted forces.

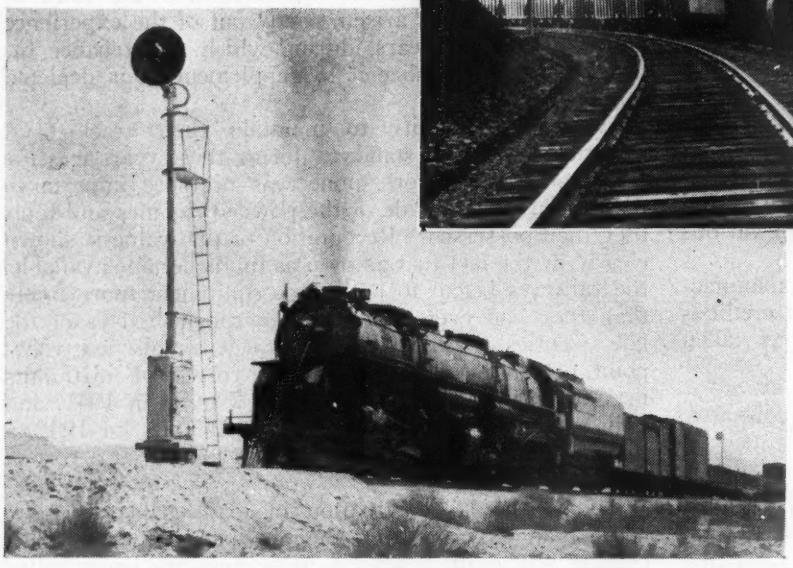
While their ability to maintain their tracks and structures to a high standard during these years was the result of many factors, none was of more importance than the use they made of the power machines and tools they then possessed. Recognition of this value is shown clearly by the fact that as soon as funds became available, the railways began to buy work equipment more freely than they had ever done, even in the lush days of the late twenties. With the development of this new viewpoint, purchases of work equipment rose from 3,310 units in 1937 to an all-time high of 8,007 units in 1941, and only a slightly smaller number, 7,612 units, in 1942, a total of 29,266 units for the six-year period, at a cost of $41,200,000.

Today, the labor situation in maintenance is more acute than it was during the previous war, and is becoming still more severe as more men are being called into the armed forces, although more men are now employed in maintenance than a quarter century ago. The reason for this apparent paradox is that while the actual tons transported have increased less than 30 per cent, compared with the former period, ton-miles, which are the true measure of the wear and tear on track and bridges, have increased more than 130 per cent and are still going up, at a time when passenger traffic is also at an all-time high. In addition, both cars and locomotives are heavier than in the period under comparison, cars are more heavily loaded and train speeds are far higher, all of which impose added burdens on track and bridges.

Must Depend on Further Mechanization

The fact that the railways have so far been able to maintain these structures to the standard necessary to move this extraordinary traffic, and to do so in the face of an extreme shortage of labor, is due primarily to the substitution of power machines and tools for the manpower that is not available. Yet, despite the large purchases that were made as the roads emerged from the conditions imposed by the depression, the number of units in service have been inadequate to meet all of the many needs that have arisen.

On this showing, the railways have presented their needs so convincingly that they have obtained the needed priority ratings for the equipment required. It may come as somewhat of a surprise, however, that the volume of purchases during 1943 have exceeded those of all former years, in both number of units and money expended. Approximately 8,500 units of work equipment were purchased in 1943, at a cost of more than $12,300,000, bringing the total investment of all of the railways in this equipment to $120,000,000. Furthermore, the power machines and tools in service are being used more intensively than ever before, so that they are wearing out at a faster rate. For this reason, and because the need for them is so great, the roads are planning to buy still more units in 1944.



At Right—On the Virginian the Centralized Traffic Control Helps to Keep the Heavy Coal Trains Moving on Long Heavy Grades. Left—On 171 Miles of Single Track on the Union Pacific the C.T.C. Saves an Average of Three Hours for Each Through Freight Train

Signaling in War and Post War

By John H. Dunn
Signaling Editor

Modern systems aid in securing more capacity from existing tracks, cars and locomotives

THE possibilities of modern signaling in the solution of post war railroad transportation problems can be determined to a considerable extent by the results that are accruing from signaling in helping to move the nation's war traffic now. The successful handling of unprecedented volumes of both freight and passenger traffic has been brought about by increasing the train handling capacity of existing tracks, and by reducing the overall time of trains between termini through reducing to the minimum the number of train stops and the duration of the delays, thus raising the overall average speed more nearly to the maximum for which the tracks and locomotives were designed. Modern signaling has contributed to these results in large measure.

New Signaling Severely Limited

The railroads of the United States entered this war with 4,487 interlockings in service, with automatic block signaling on 97,361 miles of tracks, and with centralized traffic control on 2,702 miles of tracks. In addition, power switches and car retarders were in service at approximately 42 important freight classification yards. Throughout the two years of war, the War Production Board has severely limited all new construction, including railway signaling facilities. Based on the fact that highway traffic was reduced by the rationing of gasoline and tires, the construction of new railroad-highway crossing protection was restricted to crossings in the vicinity of military camps or war industries. As a result of this policy, protection was installed at only 541 crossings in 1942, and at 206 crossings in 1943, as compared with an annual average of 1,132 crossings during the years 1939-1941 inclusive. With many thousands of crossings yet to be protected by modern apparatus, construction in this field will no doubt increase to more than the annual average of 1,132 crossings noted above, as soon as the war closes.

Conservative Interlocking Policy

The construction of new interlockings has been restricted since the United States entered the war. In some instances new track layouts were being installed when the War Production Board assumed authority, and the logical procedure was to complete the new track work as well as the new interlockings. This procedure applied to all the larger interlockings placed in service during 1943, such as those on the Birmingham Terminal in Birmingham, Ala., at the Central station of the Canadian National in Montreal, Que., and at the Illinois Central station in Chicago. At other layouts where new interlockings were planned as improvements or replacements without involving track changes or improvements in safety, the projects have been postponed until after the war, in order to conserve vital materials, especially insulated wire and cable.

Likewise with new automatic block signaling, an argument that such facilities would improve safety of train operation was not effective in all instances in convincing

the War Production Board that it should allocate materials. As a result, the only sizable "straight" automatic signaling project placed in service in the United States during 1943 was on 37.5 miles of single track on the Wabash, in a territory where a serious train accident occurred not long ago. Automatic block installations were also made on several sections of the Pennsylvania to permit train movements in either direction on certain tracks of multiple track lines which previously had been signaled for one direction only.

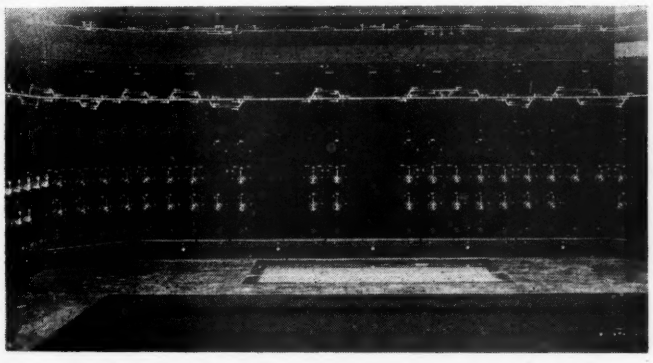
On the Canadian Pacific new automatic block signaling was installed during 1943 on 250 miles of single track between Chapleau, Ont., and Schreiber. This signaling is so planned and the signals at switches are so located that centralized traffic control can be superimposed with minimum changes at an early date.

Some Materials Allocated

Although the War Production Board restricted the allocation of materials for new crossing protection, interlockings and automatic block signaling, the materials needed for centralized traffic control projects were allocated in all instances where railroads could prove that the installations would facilitate war time traffic. An important factor in this decision is that the amounts of vital materials required for centralized traffic control are small, compared with the materials which would be required to construct additional tracks or to build new locomotives to bring about equivalent benefits in increased track capacity and savings in train time.

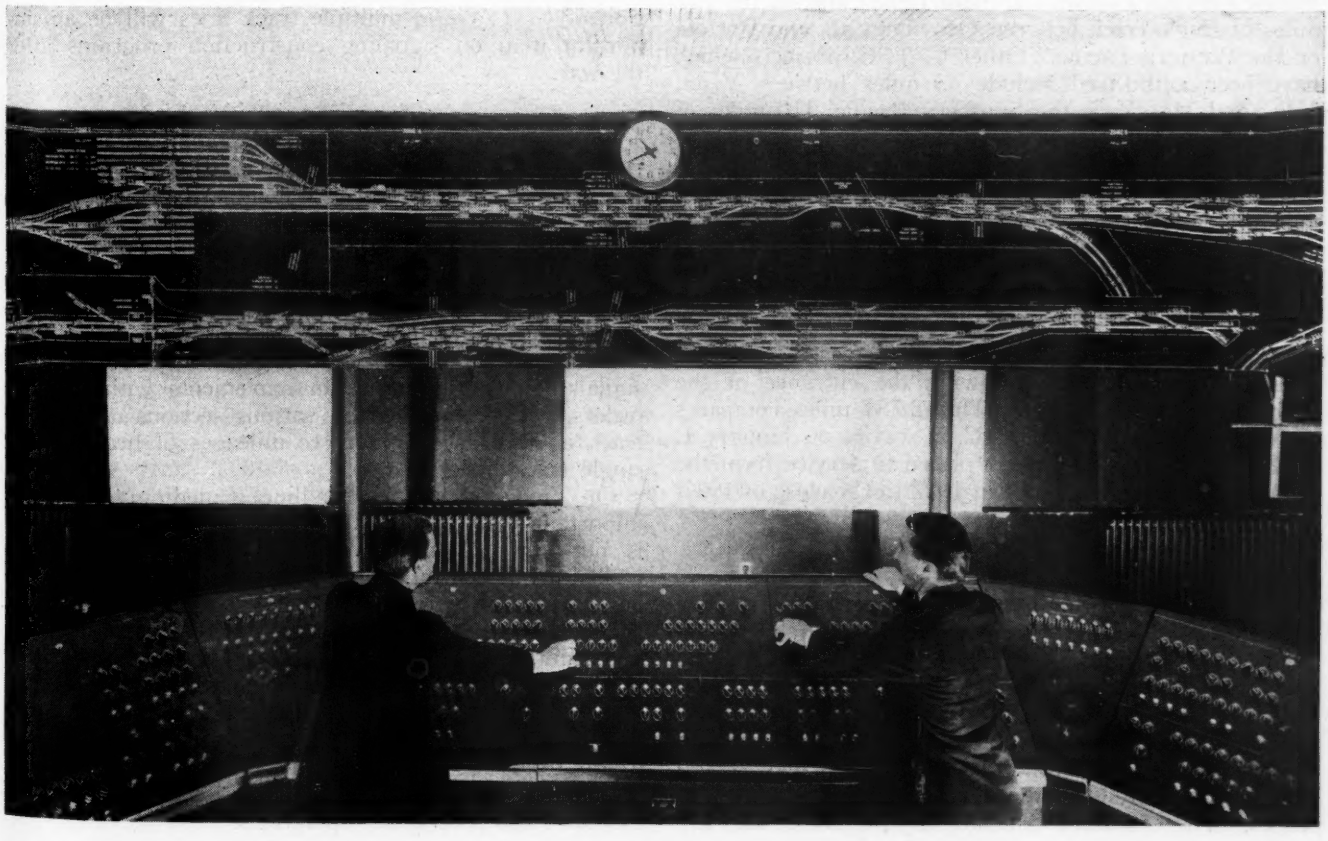
Centralized Control Eases Traffic

An outstanding example of war time construction and of the benefits of centralized traffic control is afforded by 171 miles of single track between Las Vegas, Nev., and Yermo, Cal., on the Union Pacific. As the war developed, the traffic on this line increased so that by June, 1942, the volume of passenger and freight traffic was about 50 per cent above normal. Delays were becoming so serious that corrective measures had to be taken, and, therefore, a decision was made to install centralized traffic control, the final section of which was completed in June, 1943. In the meantime during the last six months of 1942, traffic continued to increase to the extent that train operation on this sub-division was approaching the stage of acute congestion. The dispatchers could not issue train orders fast enough to keep trains moving. As a result, freight trains lost so much time on passing tracks that practically all the crews exceeded the overtime limit of 13 hr. 41 min., and, in numerous instances, double crews were required to prevent violations of the 16-hour law. Under these cir-



AT LEFT—One of Two C. T. C. Control Machines on the 117-Mile Project Between Montgomery, Ala., and Mobile on the Louisville & Nashville.

BELOW—A New Type of Interlocking Machine Installed by the Canadian National at Montreal, Que.



cumstances, helper locomotives lost hours waiting to return to the bottom of the grades, and road locomotives were in service for such long periods that there was a shortage of power.

In the meantime the centralized traffic control was under construction. The sections including the heavy grades were placed in service on December 6, 1942. Other sections ranging up to 20 miles in length were placed in service during January, February and March, the final section being completed on June 10, 1943. As each section of the new C. T. C. was placed in service, a corresponding saving in train time was made, with the result that whereas 14 locomotives were formerly required for helper service, this work is now being done by 7 locomotives. Furthermore, freight trains in general are now covering the 171 miles in either direction in less than 10 hours, as compared with 13 to 16 hours before. In brief, the centralized traffic control made it possible to handle approximately 95 per cent more loaded cars westbound and 130 per cent more empties eastbound in a seven-day period in June, 1943, than in a similar period in June, 1942, and at the same time to reduce the average time of all freight cars on this sub-division approximately three hours. The important point is that all traffic is kept moving, the congestion and serious delays formerly encountered on this sub-division having been eliminated.

For the Duration

Based on the experience of the last two years, the principal activity in signaling construction during the remainder of the war will be the completion of the centralized traffic control projects now under way, and the construction of others which are now being planned. Included in the projects under way are installations on the Atchison, Topeka & Santa Fe between Los Angeles, Cal., and San Diego; on the Louisville & Nashville between Montgomery, Ala., and Mobile; on the Southern Pacific between Colton, Cal., and Indio; and on the 117 miles of single track between Oroville, Cal., and Portola on the Western Pacific. Other C. T. C. projects which have been authorized include 43 miles between Vista, Nev., and Massie on the Southern Pacific, 110 miles of single track and 5 miles of double track between Nashville, Tenn., and Stevenson on the Nashville, Chattanooga & St. Louis, and 54 miles of single track and 10 miles of double track between Gurdon, Ark., and Texarkana on the Missouri Pacific.

These projects, totaling about 800 track miles, should be completed in 1944. Adding this 800 miles to the 1,177 miles built in 1943 and the 807 miles in 1942 makes a total of 2,784 track miles of C. T. C. placed in service during the three years following the entrance of the United States in the war. This 2,784 miles compares with the 2,701 miles of C. T. C. in service on January 1, 1942, the total of all projects placed in service from the time C. T. C. was first built in 1927 to the close of 1941.

In Post War

After this war, the railroads must meet the intensified competition of other forms of transportation by reducing the overall time of trains between termini and by lowering passenger as well as freight rates. Modern signaling affords a practical means for reducing overall train time by reducing the time lost in train stops. Likewise, signaling permits increased utilization of cars and locomotives as well as otherwise reducing operating expenses. The extensive installations of C. T. C. that are now in service are demonstrating the savings in train time and operating expenses as compared with timetable and train order operation. For these reasons, as soon as this war ends and materials are again obtainable, it is to be expected that there will be a demand for C. T. C. on single track lines which handle even a moderate volume of important traffic as, for example, 15 to 20 trains daily.

Also on Multiple Track

On many multiple track lines on which each track is signaled for one direction only, operating practice on many roads requires few if any written train orders. On some of these lines, one or more tracks may be signaled for train movements in both directions, with traffic direction locking between interlockings to establish and maintain the direction of traffic, all of which is the equivalent of centralized traffic control in so far as train operation is concerned.

On certain portions of multiple track on some roads, as for example on the Boston & Maine, the Chicago, Burlington & Quincy and the St. Louis-Southwestern, power switch machines and signals at outlying switches and cross overs are controlled remotely as a part of C. T. C. systems. On one important C. T. C. project that was completed in 1943, on which trains are operated in either direction on both tracks of a double track line—practically the entire operating district on the Chicago, Rock Island & Pacific between Blue Island, Ill., (Chicago) and Rock Island, Ill., 181 miles—all train movements are authorized by signal indication without written train orders. A further feature of this project is the provision of continuously controlled cab signaling. The primary objective of signaling both tracks for both directions is to enable both tracks to be used for trains of the same direction by running one train around the other, thus keeping both trains in motion at their normal speeds rather than holding the slower train on a siding while the faster one passes. The more extensive application of C. T. C. on multiple track lines will be an important item on signaling construction programs after the war.

In Conclusion

The conclusion may be drawn from this discussion that, for the duration of the war, signaling construction will be confined primarily to centralized traffic control projects on busy single track lines. After the war, however, there will be a large amount of construction on projects which have been postponed, such as crossing protection, interlocking, and car retarders. Complete forms of centralized traffic control, including power switches and signals for authorizing train movements without train orders, will be installed on various sections of multiple track as well as on extensive mileages of heavy traffic single track lines.

On single track lines handling a medium volume of important traffic, especially where automatic signaling is not now in service, semi-automatic signaling controlled from central points the same as C. T. C., will be provided on extended mileages as a means for eliminating the train delays which are inherent with timetable and train order operation.

The important reason, therefore, why signaling construction will increase again to a large volume after the war is that signaling is a most practical and economical means for reducing overall time of trains and also is a means of reducing operating expenses, as compared with timetable and train order operations.

Conditions and Trends – Electrical

Although safety standards have been maintained, accumulation of deferred maintenance indicates an early need of new construction

By Alfred G. Oehler

Electrical Editor

A SECOND year of war has served further to increase and stabilize the emergency measures used by the electrical departments to conserve materials and still meet the needs of the enormous traffic demands. Some of the new measures are proving so valuable that their use is being extended and will undoubtedly be continued after the termination of hostilities.

There is need for new construction and added maintenance facilities and a definite trend indicating the character of such needs is increasingly apparent.

Diesel-Electric Locomotives

An unfilled demand in the field of Diesel-electric locomotive maintenance is adequate facilities for repair of traction motors and other electrical equipment.

Daily, monthly and annual inspection requirements are effectively programmed, although the facilities for carrying out these requirements vary widely on different roads. Probably the greatest divergence occurs in facilities and practices of making motor repairs. The need for doing this work has developed only recently since the initial use of Diesel-electric locomotives was made in the switching field. Wear and tear on motors is minimized by the slow-speed intermittent character of switching service and the motors are generally amply rated. As an extreme example, one user was recently debating the desirability of having all his traction motors dipped and baked for the simple reason that they had been in service for ten years and probably needed it.

The high-speed, heavy-duty cycle of the more recently acquired road power presents a much more active problem and accumulated years of service in the switching field is also bringing a constantly increasing number of motors to a condition which requires repair and overhaul. The work can be done by the railroad, by the locomotive builder, by coil manufacturers or by local electric repair shops having the necessary facilities. At present the work is beginning to exceed the capacity of the available repair shops and several railroads are installing additional electrical maintenance facilities. This means in addition to winding stands or machines, baking ovens, dipping tanks, etc., a need for such things as balancing machines, perhaps means for seasoning commutators, and, most important of all, men who have the required ability to do the work.

In addition to deliveries made during 1943 in the United States, many Diesel-electric locomotives were shipped overseas. The 44-ton locomotives were modified and a 75-ton unit was designed to meet the requirements of the Army for use in foreign theaters of war. The locomotives conform to a special international clearance diagram and have special end plates to permit interchange of either standard automatic couplers or special drawhooks and buffers of the European type, so that the locomotives may be used practically anywhere the gage permits.

Passenger Car Electrical Equipment

The situation in the air-conditioning field remains essentially the same as it was a year ago except that during the year no major replacements have been made, no new cars placed in service and maintenance requirements have increased while manpower has diminished. Every usable passenger car is now in service.

This condition places an added burden on yard electrical facilities. Not only are there many more cars which require servicing but the variety of service requirements are considerably increased by the use of cars with odd or out-dated equipment.

As an example, it may be reported that the newest large passenger terminal in the country is badly out-of-date insofar as it is equipped to charge car batteries, supply standby power and maintain electrical equipment in need of repairs. This is no reflection on the design of the terminal, but is due rather to circumstances that affect all yard and terminal facilities. The unprecedented passenger traffic is in part responsible, but of greater consequence is the fact that the terminal was built before air conditioning was well established. The net result is that cars are serviced to the limit of the plant capacity which cannot satisfy the car requirements. To a greater or less extent this is true of nearly all yards and terminals.

To the credit of all concerned it must be said that in spite of all these difficulties, the railroads are effectively serving the country's passenger travel requirements and are making plans for producing much finer and more effective service when that becomes possible.

Manufacturers of lighting and air conditioning equipment are aware of the conditions caused by depletion of supplies, more than usual depreciation, obsolescence and the competitive requirements to come. All of the old line companies and several new ones are making plans to meet these needs when the situation will permit.

Among three groups of passenger cars reconditioned during the past year, one is lighted by a continuous line of fluorescent fixtures, one has fluorescent lamps, operating cold-cathode, placed behind glass panels, and a third is fitted with incandescent units designed for easy conversion to fluorescent.

Thirty-one cars turned out by the Chicago, Milwaukee, St. Paul & Pacific have fluorescent lighting supplied by a 110-volt power supply system. Two other railroads are also planning to use 110 volts for passenger car lighting.

Higher train speeds, necessitating electric brake control and in some cases dynamic braking, are projected

but this of necessity must be a post-war development. Other projected developments are refrigeration of foods in dining cars, improved air-conditioning control, more effective air filters, simplification and standardization.

Electric Traction

Interesting differences of opinion were expressed in discussions of railroad motive power at the recent (December) annual meeting of the American Society of Mechanical Engineers. One commentator denounced the moving at high speeds of freight trains carrying low-cost commodities, saying that maximum economy was attained when such goods moved at low speeds. Another speaker said that the present high schedule speeds which are now required gave an added reason for the electrification of lines without heavy grades, since it permitted more rapid resumption of speed after necessary slow-downs.

The first opinion suggests the James J. Hill school of thought which also gave the old silk trains from the west priority over passenger trains. Actually the old order of economy is changed by the fact that new forms of competition require higher train speeds and increasing density of traffic makes it necessary to move all trains at comparable speeds to avoid congestion. Thus one increasing demand of motive power is its ability to accelerate rapidly from medium to maximum speed whether it be done by means of steam, Diesel-electric, straight electric or turbine locomotives. The interest in motive power development is indicated by three studies which appeared in print during the past year on the relative merits of different types.

A steam turbine locomotive will be tried. More electrification seems probable, the use of the Diesel-electric locomotive will be extended, and the gas turbine appears to be a practical means for developing power on a locomotive. All of the latter three types employ electric drive and greatly extended use of electric traction may be expected.

Lighting

New applications of building and outdoor lighting have been sharply limited by shortage of material. They have been confined largely to incandescent and high-intensity gaseous sources, but experiments being made with fluorescent units indicate they will find many new applications.

High-voltage, cold-cathode fluorescent lighting has in the past been confined essentially to the field of sign lighting. During the past year engineering data have been developed and published which will permit the use of sound engineering in the application of such lighting for general illumination.

The desirability of using high-intensity illumination where welding is done has recently been realized. With adequate light the welder can see what he is doing without raising his shield. He also suffers less discomfort from strong contrasts and as a result his work is improved.

Seldom is it possible to measure quantitatively the value of light as a safety factor because accidents at a given place occur at such long intervals that adequate data cannot be accumulated. The New York subways, carrying more than 5,000,000 passengers daily with more than 100,000 going through a single station, provide an opportunity for making such a measurement. A study was made and reported on during the past year which showed reductions in accident rates in excess of 50 per cent when lighting was changed from an accepted standard to one which was better.

Programmed maintenance of lighting systems has proved to be an effective means of getting better light, reducing lighting and maintenance costs and extending the life of a system. It involves regular inspections and cleaning of fixtures and the renewing of lamps on time schedules rather than waiting for a lamp to burn out before sending a man out to replace it. Attention to proper socket voltage is also important, since lamps are no longer available in a great variety of voltage ratings.

Reclamation and Preventive Maintenance

Shortly after the beginning of hostilities, studies were made by various railroad groups seeking ways of conserving strategic materials, notably rubber, copper and tin. The suggested practices have been applied and extended. One railroad now has vulcanizers located at seven places for the splicing and repairing of damaged portable rubber-covered cable. This practice excludes moisture from the cable, makes mechanically strong joints and indefinitely prolongs the life of cable which would otherwise have to be scrapped. Another road has adapted the cable vulcanizers to the restoration of mechanical rubber goods. These include such things as Spicer torque-arm bushings, shear rings called mechanical fuses for General Electric axle drives, etc.

Vee belt matching machines are now to be found in most railroad shops where this type of belt is used extensively for multiple drives. By equalizing the tension on all the belts in a drive, their life is greatly extended.

Another new means employed by one railroad for conserving rubber consists of using a single-wire system of wiring on its steam locomotives which are not equipped with cab signals, the locomotive itself being used as the return circuit. Some electric and Diesel-electric locomotives have single-wire power circuits and it has been suggested that the practice be generally adopted.

A number of solders and babbit alloys have been produced, containing little or no tin, which are generally satisfactory once the right technique for working them has been learned. Most of them require higher temperatures than 50-50 lead-tin solder and they must be selected carefully to suit the work to be done.

The tin shortage has served to accelerate what was already a growing demand for solderless connectors. The situation has stimulated their development and their continued use can be expected even though tin again becomes plentiful.

Some new products being placed on the market indicate the trend toward conservation. One of these is a hot journal alarm system for application to locomotive or cars which warns of a dangerous rise in the temperature of a journal, permitting a correction of the condition before harm is done.

Conservation of manpower and improved operation in yards, stations and freight houses is being effected by the use of public address systems, and during the past year a number of new applications have been made. The loud speakers, with microphones located at one or a number of places are used to control manual switch operations, to transmit instructions to skate tenders and engine crews in classification yards, to page passengers and announce the arrival and departure of trains in stations, to control loading and unloading of cars in freight houses and produce yards, to call men wanted in shops, etc. The applications have been stimulated by improvement in quality of sound reproduction and by the added importance of time saving created by traffic demands.

Outstanding Production for War Is Supply Companies' Contribution

Facilities and personnel throughout industry back Nation's all-out effort for victory on all fronts

By Raymond A. Doster

Associate Editor

A RECORD production of war material was achieved by the railway supply industry in 1943 in backing the country's all-out drive for victory on all fronts. As in previous years, the production of billions of dollars worth of war materials constituted the major output of the railway supply industry but at the same time the manufacture of products that keep the railroads running and other activities which aid the railroads and the war were other important contributions. The conservation of freight cars, the enlistment of employees in the armed forces, the purchase of war bonds and the development of new methods of fabrication are among the many activities sponsored by supply companies in helping win the war.

Production Schedules Change with War Trend

While in the last two years the major objective of the industry was to convert or set up new plants and build up production to the output demanded in the haste to prepare for war, the problem in 1943 was one of shifting to the manufacture of new products upon the completion or cancellation of contracts which resulted from the changing war situation or modified strategy. Keeping the industrial system responsive to each alteration in the demands of the fighting fronts has been a major accomplishment of the railway supply industry.

The changing war situation was ably described by Charles E. Wilson, executive vice-chairman of the War Production Board at the Governors' Conference of the Second New England War Conference on November 18, when he pointed out that "a year ago a large part of our attention was being given to the production of materials for distant warfare—the fighting in North Africa. Today we are thinking less about the deserts and more about the fields and mountains of Italy, about the coasts of western Europe and about the steamy swamps and jungles of the South Pacific. It is obvious that fighting in Tunisia is a very different proposition from fighting in Germany. It demands a different kind of production. There is much less demand now than there was a year ago for tank treads, which are destroyed rapidly by the rocks and the burning sands of the desert.

"War production will not and cannot stay put. Battle experience to date has shown that smaller quantities will be needed than was supposed when the programs were shaped. In some cases, changes reflect the fact that the war which will be fought during the next six months will be different than the war of the last six months."

The changing trend of war had its effect upon the railway supply industry throughout the year, with major cancellations of orders and conversions to the manufacture of new products occurring during the latter months. On October 20 the American Locomotive Company, for example, completed its contract for the manufacture of 155-mm. gun carriages and immediately converted its Dunkirk plant to the manufacture of parts for the locomotives of the War Department and equipment needed for the high octane gasoline and synthetic rubber programs.

The Pullman-Standard Car Manufacturing Company completed its contract for M-4 tanks in October and in less than a week converted one of its Hammond, Ind., plants to the making of carriages, limbers and bogies for 155-mm. guns. In addition, the company was given orders and started production of transport wagons for 8-in. guns and 240-mm. howitzers and is modernizing a number of transport wagons. Another change affecting this company occurred on November 14, when the Navy notified it that, due to the change in Allied strategy from defensive to offensive warfare, it would be necessary to curtail the construction of patrol craft escorts by Pullman-Standard and directed the company, upon the completion of the ships on the ways, to make its yard available for the construction of landing craft of a strictly offensive nature. The notice was received as the company launched its sixteenth vessel, of which three were launched in the record time of two weeks. The sixteenth vessel was the first to be delivered to the U. S. Navy, the first 15 having been manned by the British.

Despite these interruptions to production, the total war

U. S. Navy Photo from O. W. I.

Trench Mortars Built in Railway Supply Company Plants Helped Rout the Japs from Attu

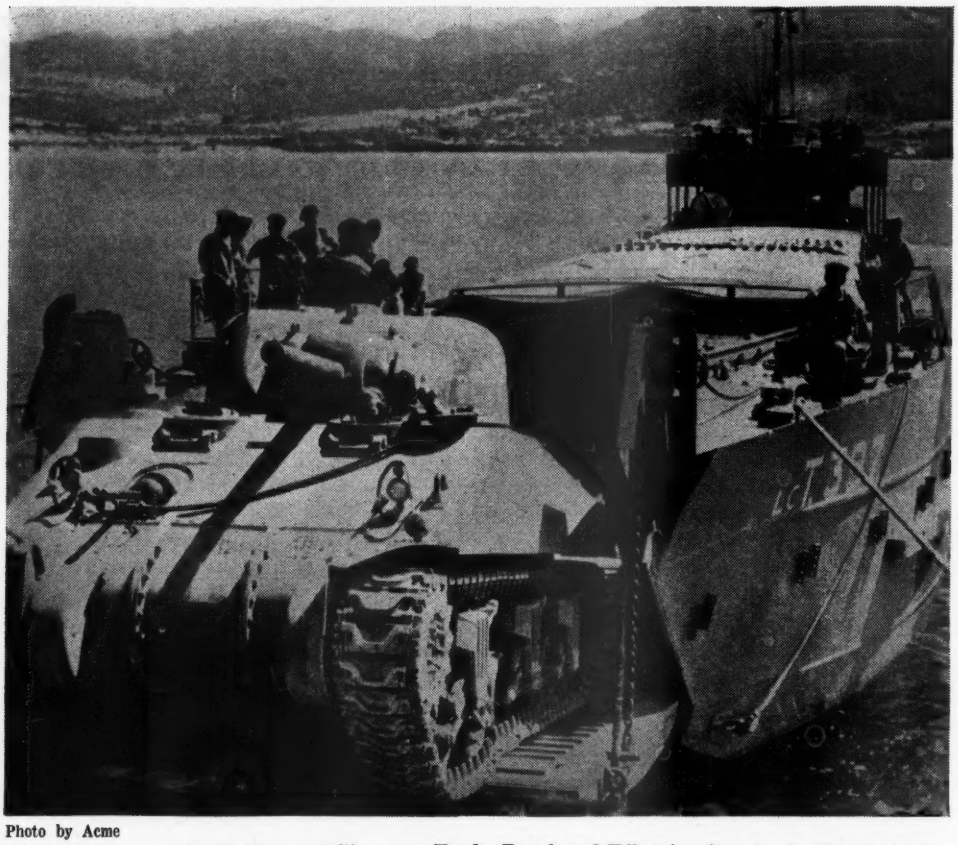


Photo by Acme

Supply Company-Built General Sherman Tanks Rendered Effective Service in North Africa

business of the railway supply industry increased materially in 1943 and will probably be even greater in 1944. The Baldwin Locomotive Works, for example, reported in August that its present backlog of orders, 11 per cent above that of a year previous, meant higher production schedules for the latter part of 1943 and throughout 1944. During the first six months of 1943, the company had awarded sub-contracts amounting to approximately $65,000,000, an increase of 15 per cent compared with the same period of 1942. A total of 1035 sub-contractors, located in 28 states and the District of Columbia, shared in the awards.

In addition to producing war materials, railway supply companies have contributed to the war effort in other ways. Thousands of freight cars have been saved through improved loading and shipping methods, and new products have been created for the railroads. The size of the flow of materials from the supply industry, which enables the railroads to perform the vital part they are playing in the war, is reflected in the purchases made by the railroads which in 1943 were even greater than those made in 1942.

Win Many Awards

Constantly accelerating production to levels which exceeded expectations, has been the record of the railway supply companies in the production of war materials. Starting from scratch in 1939, when it began work on lend-lease material, the industry has expanded its war work until at the present time it is one of the largest fabricators of war supplies for every branch of the armed forces of the United States and its allies.

Significant of the performance of the railway supply industry are the awards for excellence which it has received and is continuing to win. In some instances the entire roster of plants of individual companies has been the recipient of awards while in other instances individual plants have been repeat winners as many as four times. Repeated governmental recognition has been made of "excellence in production," with the result that plants and employees of the railway supply industry have won every type of award of the Army, Navy and the Maritime Commission. The emblems of awards possessed by the plants and employees of the railway supply companies include the Navy "E" burgee "excellence in production," the Army-Navy "E" burgee for "high achievement in the production of war equipment," individual Army-Navy lapel pins, the Maritime "M" burgee and the Victory Fleet flag for "outstanding achievement," the Navy Ordnance pennant and the Maritime labor merit insignia for employees.

The diversity of war products being made, differing markedly from those of peacetime, not only reflects the ability of the industry to shift to the manufacture of war materials, but indicates also the technical accomplishments that lie behind the awards of merit. Combat tanks, railway and anti-aircraft gun mounts, gun barrels, barbettes, shell forgings, armor plate, projectiles, battleship turrets, marine Diesel engines, ship keels, propellers and metal and plastic parts for airplanes, steering gears for ships, airplane elevators for aircraft carriers and catapults for airplanes, for example, are being made by the Baldwin Locomotive Works; combat tanks, armor plate, shell forgings, fuses, bridge pontoons, demolition bombs, and mine sweepers, by the American Car & Foundry Co.; combat tanks, gun carriages, shells, Diesel engines and other items by the American Locomotive Company; fragmentation bombs, shells, airplane parts, doors, oil and gasoline tanks, stacks, manhole covers, and other items for naval vessels by the Edward G. Budd Manufacturing Company; and combat tanks, carriages, trench mortars, shells, bombs, parts for anti-aircraft gun mounts, wings for cargo airplanes and sub-

marine patrol boats by the Pullman-Standard Car Manufacturing Company; and combat tanks and crawlers by Lima Locomotive Works, Inc.

While the technological accomplishments of the railway supply industry in the transformation of plants into arsenals for democracy and the speeding up of production are outstanding feats, the dramatic performance of the material on all battle fronts in the Pacific, China, Italy and Russia is even more gratifying. The tanks, shells, guns, trench mortars, airplane parts and other material contributed by the railway supply industry proved effective in the drives on Tunisia, Sicily and Italy, in routing the Japs from islands of the Pacific and in the Russian offensive. Further evidence of the effective role played by the war products being made by the supply companies is reflected in the war against the submarine by ships and planes, for which railway supply companies fabricated parts; in the sinking of enemy supply ships by submarines that contain railway-supply-built Diesel engines and parts; and in our vast supply lines over which operate ships that were built with products made by the railway supply companies.

Prepare for Post-War Business

Although the railway supply companies are now concentrating their energies upon the production of war materials, they are not unmindful of the demand for railway appliances that will occur immediately after the war, when worn-out locomotives, cars, rails and other products essential to railroad operation must be replaced. Most of the railway supply companies which are now engaged in war work have their machinery intact or have so utilized their plants that, by the removal of the equipment added for the manufacture of war products, these plants can resume the manufacture of peacetime products as soon as raw materials reach them. Most companies have continued throughout the war to manufacture products for railroad use, either civilian or military, and their production lines, although reduced in number, will be in a position to fill orders at once.

Locomotive and car builders, for example, have continued in operation several of their assembly lines and back shops for the construction of locomotives and cars for the Army, the Navy and the railroads and have either in storage or on the floor in their shops the machines for making parts used in equipment fabrication. As a result, they are in a position to fill orders immediately at the end of the war and can extend their capacity as rapidly as government machinery is removed.

In the case of the car builders, their ultimate capacity is limited only by the ability of the back shops to supply the assembly lines. Prior to the war, the rate of a modern freight car assembly line was three to four cars per hour while a back shop could easily supply five assembly lines which completed 15 to 20 cars per hour. On this basis, if only 21 of the total assembly lines of the 10 major freight car building companies were used, the output would be 63 cars per hour, or about 151,000 cars per year.

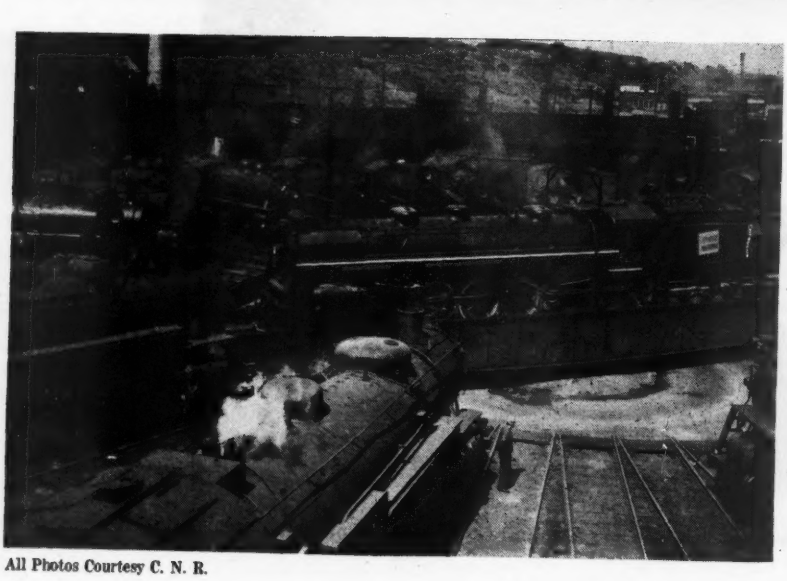
The ultimate capacity of all freight building facilities, which exceeds this amount, has never been reached, the largest number of cars built in one year being 236,451 in 1906.

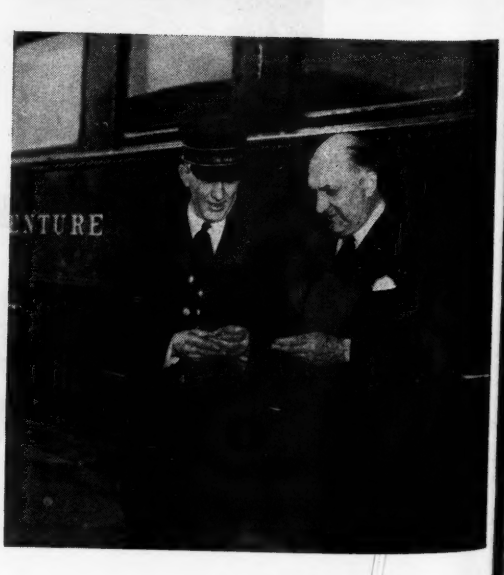
Forecasts of postwar business indicate that the purchases of new equipment of all kinds will be heavy and that equally extensive modernization of roadway and structures will also be necessary. According to a report of the Railroad Securities Committee of the Investment Bankers Association of America, requirements in general will include the extensive elimination of curves and grades, the installation of heavier rails, extensive installations of centralized traffic control systems, better bridges, improved terminal facilities, the electrification of certain heavy traffic divisions and the modernization of machine shops. This committee was of the opinion that the amount that could "profitably" be spent on both the fixed properties and for equipment, or that it would be desirable to spend if railroad credit were restored, could average a billion dollars per year for some years.

Estimates of railroad officers indicate that at least 100,000 freight cars, 1,000 passenger cars and 1,000 locomotives will be built in railroad and private shops annually during the postwar period. This alone would mean annual expenditures of over $500,000,000, without any expenditures for roadway and structures upbuilding which will approximate or exceed the outlays for rolling stock.

Signal Corps Photo

Parts for the 105-mm. Howitzer Were Made by Railway Supply Companies





All Photos Courtesy C. N. R.

'43 a Still Bigger Year in Canada

Railways have larger traffic and gross but increase in net is not spectacular—Railway-owned air lines flourish—Both roads study their post-war prospects

By Railway Age's Correspondent at Ottawa

MORE traffic handled with fewer men and reduced equipment and with improved earnings despite "frozen" rates—the familiar story of the war—is the picture of performance by the Canadian railways in 1943, the fourth year of war. But it has become apparent that if these railways are to be expected to maintain the 1943 pace, the manpower and material and equipment situations will have to be eased by the Dominion government. In some areas and under some conditions it looked as if both the Canadian Pacific and the Canadian National were achieving the impossible. This kind of uphill fight cannot continue indefinitely.

It Was Cold Last Winter

The first aim of the railways, of course, has been to do the war job—get the raw materials moved to the war plants, transport the finished weapons and equipment to seaboard, carry a steadily increasing number of troops from every part of the country to every other part—and, while caring for all the multitudinous combatant and civilian needs, seeking spare men and spare time to keep their roadbeds and their cars and locomotives in running condition. Sometimes it has seemed a hopeless task. Last winter, which had the worst weather record for forty years, was a heart-breaker for the roads, but they kept going. In most places for days schedules just had to be forgotten, the central job being to get the trains moved at all and with safety.

Before the war the first subject of study in the year-end review of railway performance was that of finances—how much or how little money would Parliament have to vote for the Canadian National to enable it to meet deficits from its operations; and what sort of dividend could be awarded the C. P. R. shareholders. The financial questions are still important but now these are subordinated to the main matter, the war business.

Both roads have done remarkably well, from a financial standpoint. Once more the Canadian National, the publicly-owned road, will, when all returns are in, chalk up a considerable operating net. In 1942 the company's gross revenues were $375 millions and its net operating revenue $86 millions. After payment of taxes, fixed charges and other deductions, the surplus was $15 millions—a result which will be substantially improved in 1943.

ON OPPOSITE PAGE: At Top, O. T. Larson, Vice-President of Trans-Canada Air Lines (C. N. R. Subsidiary), Shows Shop Work on Planes to C. N. R President Vaughan; a Trainload of Dominion Munitions Heads for the Seaboard.

Middle: C. N. R. Roundhouse at Turcot (Montreal).

Bottom: A Busy Turntable at Turcot; Mr. Vaughan Checks the Time with Stationmaster at Saskatoon.

Net Increases but Slightly

Canadian Pacific operating figures for the ten months of 1943 may give a fairly reliable indication of what will be the result for the entire year, gross earnings for the ten months being $242,363,471, an increase of over $32,000,000. Operating expenses were nearly $204,000,000, an increase of nearly $32,000,000, and net earnings were $38,600,000, only a slight increase over the same period in 1942. It looks as if the Canadian Pacific will have for the complete year an operating net of about $50,000,000.

Because of limitations on equipment and manpower the most rigorous economies in both have had to be practiced, and the results have been almost startling. The railways warrantably thought they had done a big job in 1942 and that the high level of traffic then could hardly be passed, but incomplete figures on 1943 show remarkable increases. Canadian National estimates place freight traffic, in millions of ton-miles, at 36,233 in 1943, an increase of nearly 5,000 millions over 1942, while passenger-miles, in millions, rose to 3,633 in 1943, an increase of nearly a million passenger-miles. A similar performance was given by the Canadian Pacific, and all this with the necessity of the most rigorous economy in use of equipment.

Fuel Conservation

A fuel conservation program will show a saving on the C. P. R. at the end of the year of 500,000 tons over the entire system, an economy of 10 per cent on the total coal consumption. Other economies were effected in the conversion of equipment. For the convenience of the troops the C. P. R. built 11 commissary cars to provide meals with speed and efficiency, and similar equipment has been introduced on the Canadian National. The old special silk cars are now serving as baggage cars on regular runs. Both roads, too, have heavily recruited women for coach cleaning, yard checking, engine wiping, station snow clearance, and numerous other occupations.

A fair amount of new equipment was received by both roads during the year but not, of course, as much as they desired. The Canadian National got delivery of 28 locomotives, 2,757 freight cars and 59 passenger cars, while 37 additional locomotives and 6,400 freight cars were ordered but are not yet delivered. The list

of new equipment received by the C. P. R. includes 30 locomotives, 2,000 freight cars, 50 cabooses, and eight 10,000-gal. engine tenders.

An outstanding event of the year for the Canadian National was the opening in July of the new Central Station and terminal in Montreal. This has provided the city with a large and modern passenger terminal, replacing highly antiquated facilities, and has brought with it an improvement in the handling of express and mail.

Loss of Employees to the Services

It was inevitable that both roads, too, through the year should contribute more of the sorely needed manpower to the armed services through enlistment. It is estimated that out of the total 70,000 on the C. P. R. personnel about 25 per cent are in war service, while at the end of the year the Canadian National list showed over 17,000. Both roads, too, have contributed or "loaned" to the Dominion government capable officers to man the many war boards.

Another feature of the year was the special inspection service given by the C. P. R. in connection with 145 locomotives built in the Dominion for the State Railways of India. The C. P. R. took charge of the inspection of these engines for the India Supply Mission, and sent one of its erection engineers to India to set up the locomotives. This is the first inspection of locomotives in Canada by other than the railway buying the equipment.

The question of equipment is bound to be more and more pressing, because, even with any slackening in the demand upon the railways for the moving of actual war goods, there will be to replace this requirement the need to move cereals to seaboard for the big relief job assumed by this and other United Nations. A large pile of grain in the Canada's West awaits movement, and the relief job in Europe will be tested mostly by the ability of this continent to get the grain to seaboard. So for the next five years, at least, the Canadian roads will be needing all the rolling stock they can get.

Air Line Subsidiaries Progress

On both the large roads during the year an important role was played by their air lines, chiefly for the movement of urgent war material and personnel into areas otherwise inaccessible. What the Canadian Pacific Airways has done in Western Canada, what Trans-Canada Air Lines, the publicly-owned line (operated as a subsidiary to the C. N. R.) has done in most parts of the Dominion makes an exceedingly interesting story. T. C. A. has also gotten into the business of moving troop mail and government officials across the Atlantic, thus supplementing a service already given by the British R. A. F. Ferry Command, and also by American machines. All the Canadian air lines had a hand in the Northwest Canada development, and C. P. A. continued to get important equipment into remote places for base metal mining and to get out some of the results of the mining.

T. C. A. is planning an expansion of its service across the ocean by doubling the number of Lancasters available, while at the same time the R. C. A. F., Canada's air fighting machine, has opened an auxiliary service to fly mail to the troops in Britain, in North Africa and the Middle East, and eventually this will extend to Ceylon and India. It has been suggested that as this R. C. A. F. service, a government service, is to continue until the end of the war, maybe afterwards, this may form the basis of Canada's bid for a place in the post-war civil aviation field.

There are no operating figures yet available, but it is known that T. C. A., the government civilian service, is a paying enterprise. It more than meets operating costs and has repaid the government for most of the capital outlay on planes and airport facilities. The same applies to C. P. A., the privately-owned enterprise of the Canadian Pacific, which engages in a large number of local services both in Eastern and Western Canada.

The Dominion's Premier, R. L. Mackenzie King, however, made it plain at the last session of Parliament that for purposes of negotiation of pacts with other countries the T. C. A. would be recognized as the government agency, that publicly-owned air operation is here to stay. This has meant that applications by C. P. A. for new routes have, virtually, to go through the hands of the publicly-owned system. There is, however, co-operation between the services, even though at times the spirit of rivalry, inevitable in such a situation, makes itself seen and heard.

In the face of execrable weather last winter, of dwindling equipment, of the many manpower difficulties, the Canadian railroads have concluded a year that will in the future look like an amazing achievement. What is more significant is that both of them are ready to do even a better job in 1944 and all the favors they are asking are all the new equipment the government war machine can spare. They will do the rest and with fewer men.

Higher Wages Sought

Wages in Canada, along with other prices, have been "frozen" by government order—except for a "cost-of-living bonus" of $1.25 per week for each increase of 5 points in the official cost-of-living index. The Canadian railway unions are, however, not accepting this wage "freezing," and—in several cases pending before the Dominion War Labor Board—are asking that their pay be put on a basis of equality with rates in the Eastern United States. The Canadian unionists, in advancing their claim, point out that they have not received an increase in basic wages for 15 years, while, during that time, two increases have been awarded in the United States, and a third is impending. They contend also that living costs in the Dominion are higher, not lower, than those south of the international border.

President Coleman Reviews the Year

"Twelve month ago," said D. C. Coleman, chairman and president, Canadian Pacific, in his New Year's statement, "the railways of Canada entered upon what promised to be a year of such activity as had not been experienced in all their history. It has been a year of many and great difficulties. To these, climatic troubles of last winter greatly contributed and for this and other reasons operating costs steadily moved upwards. Shortage of equipment and scarcity of labor were contributing adverse factors, but despite it all, war-time requirements have been met and the ordinary business of the country has in no way suffered by reason of the unprecedented traffic which the railways have been called upon to shoulder.

"This higher standard of operating efficiency has not been achieved solely by reason of the effort of the past twelve months. In the case of the Canadian Pacific it is the result of years of striving in that direction. Since the first great war ended progress has been steady and without interruption, and the results which now are contributing so greatly to the national war effort are the fruits of long-time planning and effective execution.

Nor is this progress the result of great increase in physical facilities. Additions to rolling stock and motive power were meager during the years of depressed business and fell far short of what ordinarily would have been considered normal requirements.

Increased Equipment Utilization

"A comparison of Canadian Pacific operations for the past year with those of 1939 is of interest. The freight traffic of 1943 registered an increase of 70 per cent in ton-miles, while the increase in passenger miles was about 250 per cent. Over the same period the average daily mileage of freight cars increased by more than 25 per cent, while passenger miles per train-mile showed an increase of 185 per cent. The increase in gross ton-miles hauled per locomotive was 50 per cent. In regard to the greatly increased passenger business this increase in load was achieved in part by curtailment of parlor car services on certain runs and of trains that in normal times had served summer resorts and tourist traffic generally.

"Among the outstanding performances of the railway year the successful handling of an unusually heavy grain movement offers an interesting example of the efficient manner in which the country's transportation needs are served. The movement started late and had to be concentrated into a comparatively short period. In the late fall the railways were met with a government request for a special effort in this direction. In order to cope with the need the Canadian Pacific objective set was for a movement of 350 cars daily from western points to the head of the lakes. From August 1 to the middle of December this company delivered a daily average of 436 cars. While the lake-head to eastern points movement was in progress we also delivered an average of 49 cars daily. During the crop moving period a total of 65,727 cars of grain were handled, a daily average of 582 cars over 113 working days. Of this performance Canadian Pacific men have reason to be proud.

Time to Plan for Post-War

"The story of the Canadian Pacific year would be incomplete without reference to its more direct contribution to the flood of war materials Canada is sending to the battle areas. The year witnessed completion of the order for Valentine tanks in company shops which have since then turned to the production of engines for fighting ships, while the manufacture of naval guns and mountings and other smaller munitions continues to go forward according to requirements. This, of course, has been in addition to the abnormal strain of heavy demands on the company's shops for essential repairs and construction of rolling stock.

"Canadian Pacific Air Lines are also making their important contribution to the company's war effort. Increased volume of war traffic has been added to operation of training schools and overhaul plants, which are being run as a war effort on a non-profit basis.

"While this is by no means the time to enter upon the discounting of future victory or in any to relax the continued all-out effort required to ensure it, we must recognize that in some directions the curve of war production shows a tendency to level off. It is obvious that, here and there, the peak of production has been passed. This tendency, however, is not so pronounced as to permit us to yet turn much of our energy towards post-war problems for new requirements are constantly arising, but it is high time that they should be given serious thought and that the foundation for post-war planning should be constructively laid.

"The Canadian Pacific has already paid considerable attention to this aspect of its future activities. It will be remembered that some months ago the company appeared before the Special Committee of the House of Commons on Reconstruction and Re-establishment. At that time its presentation stated that a committee of its senior officers had been engaged in the preparation of plans for after-war extension and improvement of the company's facilities on the assumption that victory would be followed by full employment and reasonable continued prosperity as the normal situation of Canada. It then was foreseen that a vast amount of work lay ahead—much of it work that necessarily had been left undone during the stress of years of war, and there was much in the way of extension that might be carried out in the railway, in hotels and steamships, in air line services and other branches of the company's activities.

Assumes Regime of Free Enterprise

"All this was presaged upon the presumption that private enterprise would continue to be the base of Canada's economic activities, and that labor would continue loyally to co-operate with legitimate private capital, which would be permitted to earn such return as would encourage its investment. These post-war activities would enable the company directly and by material purchases to maintain its standard of employment in after-war days up to the war-time peak. Further detailed study by the company's committee has justified this expectation, and has established the fact that a very large sum of the company's funds may wisely be spent in thus assisting the orderly transition from war-time conditions to peace time prosperity, guaranteed by full employment for the country's workers.

"Looking towards the future, I see no indication of a slowing down of Canada's industrial activity. For some time to come, any employment slack resulting here and there from cessation of work in war lines will be taken up quickly by renewed activities in peace-time occupations.

"In the period that lay between the end of the first great war and the opening of the present conflict, Canada made considerable forward strides, but not so great perhaps, as had been anticipated, which may have been the result of lack of wise and timely planning. During those two decades the country added about three millions to its population, or not much more than might reasonably be expected from its natural increase. It is earnestly to be hoped that a well considered program of immigration will be included in any plans that are made for the country's future. The measure of Canada's progress will be found in the increase of her productive population. We have the natural resources, but only men and women can turn them into wealth. However soon the war ends the country's burden of debt will be so great as to demand a large increase over pre-war production to prevent it being a drag on our activities."

President Vaughan Surveys Traffic Growth

"All the resources of the company, human and material, have been utilized to the utmost to handle the immense flow of traffic, freight and passenger, that developed during the year as the tempo of war quickened," said the Canadian National's chairman and president, R. C. Vaughan, in his New Year's state-

ment. How vast that flow has been, may be gaged by the following tabulations:

Year	Freight Traffic in Millions of Ton Miles	Percentage of Increase in 1943 %	Passenger Traffic in Millions of Passenger Miles	Percentage of Increases in 1943 %
1943	36,233 (estimated)		3,633 (estimated)	
1942	31,729	14.2	2,708	34.2
1939	17,084	112.1	875	315.2
1933	11,550	213.7	665	446.3
1928	23,041	57.3	1,541	135.8
1917	14,951	142.3	1,558	133.2

"Further understanding of the 1943 operating performance of the System is to be gained through knowledge of the fact that the volume of business recorded above was handled by a staff which only numbered 7.5 per cent more than in 1942; with a decrease of 0.2 per cent in the number of locomotives owned and with increases of only 2.4 per cent and of 1.6 per cent respectively in the numbers of freight and passenger cars owned by the company. While the figures do not tell the complete story because of improvements in equipment, roadbed and so forth that have been made since, nevertheless, it is interesting to observe that the vastly increased war traffic on the Canadian National in 1943 was handled with 16.6 per cent fewer locomotives, 15.5 per cent fewer freight cars and 4.7 per cent more passenger cars than was the traffic of 1917, a comparable year of the last World War.

"These few salient facts serve to prove the vital importance of the company's value to the war effort, and it is to be hoped they will also support the view that to a considerable extent the ability of the property to absorb increased responsibility is dependent upon its obtaining necessary manpower, equipment and material for maintenance. While it has been made known that problems of this nature do exist and provide causes for growing anxieties, the management in many instances has endeavoured to get along with the use of substitute materials and with diminishing staffs. However, there are limits to the strain that both men and materials can endure.

"The System has also been privileged to assist the war effort by other means than the provision of transportation by land and sea and, through its associate company, Trans-Canada Air Lines, by air. The Canadian National is truly a world wide organization. operating railroads, airlines, steamships on the Atlantic and Pacific, lake steamers, express, commercial telegraphs, hotels, coal mines and a drydock and shipbuilding plant. The manufacture of naval guns and field artillery gun carriages that was started some years ago, has been continued with conspicuous success at the Point St. Charles Shops. In its Pacific Coast shipyards the company has met its schedules for the construction and repair of naval and cargo vessels. A number of hospital cars, in the designing of which the medical department of the company assisted, have already seen useful service and pride is felt in the splendid work that has been accomplished by Canada's Hospital Ship, the "Lady Nelson," formerly the flagship of the company's West Indies fleet. The company was honored in being selected to provide extensive train and other services for Prime Minister Churchill, President Roosevelt, Madame Chiang Kai-shek during their visits to Canada in 1943 and for a long list of other eminent men and women who are prominent in world affairs.

"Although the management holds to the view that no consideration must be permitted to interfere directly or indirectly with the conduct of the System's war effort, nevertheless, it is not unmindful of the responsibilities it will have to assume as Canada's largest transportation system and industry and largest purchaser of supplies in the post-war world. Accordingly, considerable study has been made of those problems and a lengthy plan embodying the results of some of those studies was placed, during the year, before the Rehabilitation and Reconstruction Committee of the House of Commons in Ottawa. Here, however, it might be wise to add a word of caution. Although there are few signs to suggest an early termination of hostilities, when that happy day does arrive, it will not end the wartime burdens of the Canadian National. These responsibilities will continue and will have to be discharged until all the men and women in uniform and all war workers have been returned to their home towns and the last ton of war materials moved where the government wants it to go.

"And after that the company will face a job of rehabilitation before, as far as it is concerned, it can say it has returned to normal times."

Subsidies Are Popular or Unpopular, Depending on Who Gets Them

"A century ago American ships built and operated by Americans sailed the seven seas and asked no odds of their competitors. Steam came and gradually our building costs rose relatively to those of other nations. Also we imposed conditions affecting their operation which brought a similar divergence in operating costs. The American merchant flag consequently began to disappear from the seas. This brought a demand for 'subsidies' to remedy the difficulty. For many years 'shipping subsidy' bills were introduced in Congress but none passed and at the turning of the century and up to the outbreak of the last war our flag was the Cinderella of the high seas. The rest of the story is too familiar to need rehearsal. . . .

"If it had been *merely* a question of costs, and we could *buy* merchant-ship transportation for our goods from foreign flagships more cheaply than we could *make* it with our own ships, why not buy it? But it was not a mere question of costs. We had a navy which *needed* 'auxiliaries,' that is merchant ships which could be turned to navy use in time of war. Thus the logic required a 'subsidy' *from the navy* to equalize the cost of building and operating the 'auxiliaries' which it needed. But the logic was not heeded—hence the above-mentioned consequences. All we got was a series of annual 'debates' which got nowhere.

—Thomas F. Woodlock in the Wall Street Journal

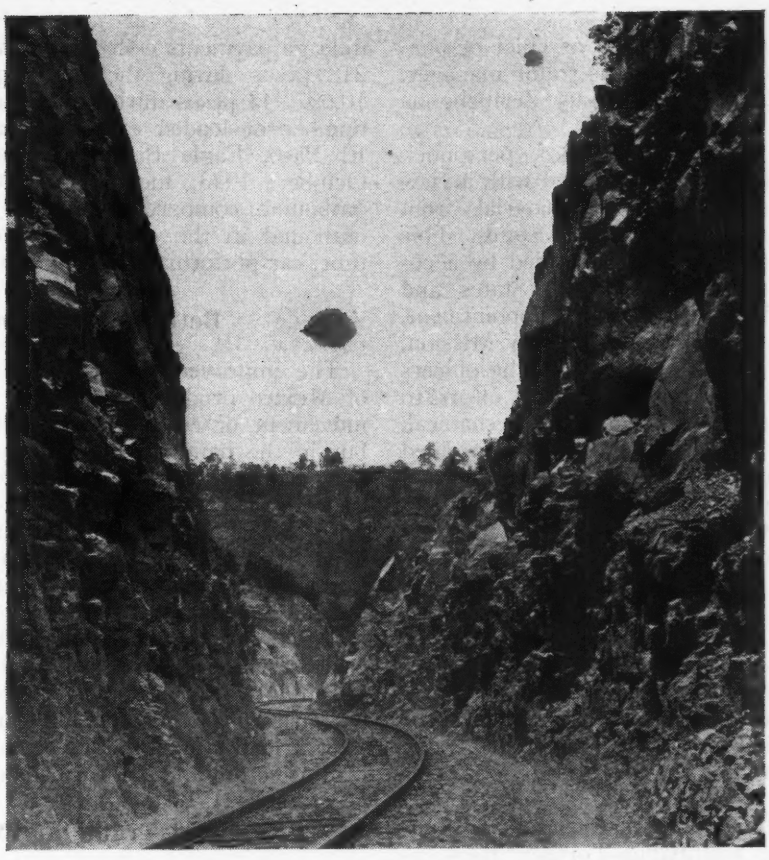
"Now the curious thing is that a totally different 'subsidy' picture is furnished by our policy concerning another phase of water-transportation, that on canalized internal waterways.

"We have poured out many hundreds of millions in canalizing the Mississippi, the Missouri, the Ohio and the Tennessee rivers for light-draft vessels and have thrown them open to free use by our citizens. Not only that; we have even sunk some twenty odd millions of public money in the government-owned Inland Waterways Corporation which has practically never earned an honest dollar for the government on its cost, under proper accounting. It has been demonstrated times without number that transportation by canalized waterways is more expensive than transportation by railroad.

"Moreover, even subsidized by provision of capital and maintenance costs its users have made far from a brilliant showing for themselves! The whole business in fact is an economic absurdity, as everyone acquainted with it knows in his heart!

"What is the explanation of these curious facts?

"This writer will 'give it up,' except for a suspicion that the policy expressed in our actions seems to depend more upon who gets the subsidy than upon the logic of the facts."



Many of the Lines of the Mexican Railways Traverse Rugged Country

The National Railways of Mexico Prepare for War Traffic

Materials needed by the United States constitute sizeable portion of tonnage handled during year

By Our Correspondent in Mexico

AN EXTENSIVE rehabilitation program, involving changes in management and improvements to line and equipment, has been prosecuted during the year by the National Railways of Mexico in preparation for the handling of increased traffic incident to the war and has now progressed sufficiently to put this road (which comprises 78 per cent of the total railway mileage in Mexico) in a position to carry the largest volume of traffic it has ever handled. At the same time, improvements inaugurated under this program have made possible the establishment in 1943 of record performances in several departments of the railroad.

The rehabilitation of the National Railways of Mexico started in 1941, when the ineffective Workers Administration was replaced by government control and when, upon the death of General Enrique Estrada, formerly general manager, Avila Camacho, president of Mexico, appointed experienced railway officers to take over the management of the properties. In October, 1942, Margarito Ramirez took over the management of the railway as general manager and the board of directors was reorganized to include the general manager, the under secretaries of the departments of communication, finance and labor, who represent the government, and two members who represent the Mexican Union of Railroad Workers. Subsequent changes in management personnel include the recall of J. J. Franco, former general superintendent of transportation, to the newly created position of assistant general manager with jurisdiction over the transportation, maintenance of way and mechanical departments; the placing of Santos Fierro in charge of the mechanical department; and the appointment of Adrian del Paso as chief engineer, Francisco Malagamba as engineer of main-

tenance of way, J. Guadalupe Estrada as chief of purchases and stores, Benjamin Mendez as traffic manager, Francisco Perez as treasurer and Jesus Zertuche as general auditor.

Coincident with the reorganization of personnel, changes in operating practices were initiated with a view to facilitating the movement of essential materials from Mexico and Central America to the United States. This phase of the rehabilitation program was aided by a co-operative agreement between the United States and Mexican governments which resulted in the appointment, in October, 1942, of the United States Railway Mission, headed by Oliver M. Stevens, to work with the officers of the National Railways of Mexico in an effort to improve transportation, maintenance of way, mechanical, purchasing and accounting practices. It was also aided by the sending of groups of Mexican railway officers to the United States to study methods and practices employed on U. S. railways with a view to establishing uniformity that would enhance interchange during the war.

First Came Line Improvements

One of the first problems attacked, under the co-operative plan of the governments was the improvement of certain lines in order that they could move the traffic that had been handled by ocean and gulf carriers prior to the war.

These included the Laredo-Mexico City, the Monterrey-Torreon, and the Chihuahua-Torreon lines, as well as the Cordoba-Puerto Mexico line and its continuation to Suchiate on the Guatemalan border.

Other improvements made through the co-operative efforts of the two governments involved track, shops, rolling stock and other equipment. The locomotive supply of the National Railways of Mexico was augmented by the purchase of 27 second hand locomotives in the United States and by improvements in the maintenance of locomotives already owned.

However, because traffic has increased at a higher rate than the availability of tractive power, a serious problem has been created and the purchase of Diesel locomotives is being considered as a means of enabling Mexico to carry out its obligation to the Allies, the providing of an ample supply of essential materials. With the exception of 39 coal-burning locomotives, all locomotives on the National Railways are oil burning units.

Loaded Cars Interchanged May to October

	Imports		*Exports*	
	1943	1942	1943	1942
Laredo	9,651	8,093	12,490	8,575
El Paso	2,611	1,305	3,911	3,996
Eagle Pass	1,607	1,176	1,453	1,357
Brownsville	735	477	1,849	1,606
Totals	14,604	11,051	19,703	15,534

Imports during the six months, May to October, increased 3,553 cars, while exports increased 4,169 cars. Many of these cars contained essential materials for the war, although they are not included in the table as such.

Interchange Made Desirable

At the same time, greater use was made of the foreign cars on the lines, of which about 5,000 are normally on the National Railways of Mexico. Interchange was made more attractive to this railroad through a revision of accounting practices which increased per diem and mileage payments collected by this railroad from 7,110,218 pesos during the first eight months of 1942 to 10,607,943 pesos during the same period of 1943. The number of loaded cars interchanged at Laredo, Tex., El Paso, Eagle Pass and Brownsville from May to October, 1943, included 14,604 inbound and 19,703 outbound, compared with 11,051 inbound and 15,534 outbound in the same period of 1942. At the same time, car performance was improved.

Betterments Bring Results

The improvements made on the National Railways of Mexico produced immediate results, not only in the movement of essential materials to the United States, but in the handling of traffic within Mexico. During the period from May to October, 1943, a total of 9,148 carloads of war materials were delivered to connecting lines at the border gateways of Nuevo Laredo, Tam., Ciudad Juarez, Chih., Piedras Negras, Coah., and Matamoros, Tam., compared with 7,876 carloads during the same period of 1942. This traffic in 1943 consisted of 2,977 carloads of ingots, 4,080 carloads of ore concentrates, 256 carloads of lumber, 70 carloads of mahogany, 437 carloads of livestock, 343 carloads of coffee, 64 carloads of guayule, 32 carloads of crude rubber, 416 carloads of sisal, 212 carloads of henequen, 1 carload of cotton and 260 carloads of alcohol.

Total Traffic at Record High

Total freight and passenger traffic on the National Railways of Mexico in 1943 was the largest ever handled by this railroad. During the first six months of 1943, a total of 5,541,644 tons of revenue freight was transported, an increase of 6.76 per cent over the 5,167,036 tons handled during the same period of 1942. This traffic consisted of the following:

	First six months	
Commodity	1943 tons	1942 tons
Forest products	400,425	329,971
Agricultural products	1,600,908	1,627,511
Animals and animal products	162,008	141,094
Inorganic products	2,690,767	2,548,918
General merchandise	687,536	519,542
	5,541,644	5,167,036

Earnings Also Highest in History

The earnings of the National Railways of Mexico in 1943 were also the highest in the history of the railroad. They resulted from increases in traffic, rates having remained at the pre-war level, and from efficiency of operation, which more than offset higher labor and material costs. Gross operating revenues amounted to 159,825,550 pesos during the first eight months of 1943, compared with 128,527,381 pesos during the same period of 1942, an increase of 24.35 per cent. Of this, freight revenue increased from 90,913,660 pesos to 110,008,718 pesos; passenger receipts, from 22,163,851 pesos to 28,934,986 pesos; express revenues, from 10,946,607 pesos to 15,632,835 pesos; baggage revenue from 84,886 pesos to 86,153 pesos; miscellaneous revenues, from 4,399,871 pesos to 5,140,700 pesos; and telegraph revenues, from 18,508 pesos to 22,159 pesos. Other than operating income increased from 2,614,696 pesos to 3,012,067 pesos, most of which came from rental of cars to other railroads in Mexico and the United States.

Operating expenses were also larger in 1943 than in 1942, owing to the expansion of facilities required

by heavier traffic, higher material prices, and wage increases which ranged from 1 per cent up to 50 per cent for employees earning less than 300 pesos a month. Total operating expenses during the first eight months of 1943 amounted to 134,241,811 pesos, compared with 110,017,772 pesos during the same period of 1942, an increase of 22 per cent.

Transportation department expenses increased from 45,309,673 pesos to 51,911,362 pesos, or 14.57 per cent, during the periods mentioned. The majority of this increase is attributed to heavier traffic. Maintenance of way expenses increased from 16,330,549 pesos to 22,146,548 pesos, or 35.6 per cent, most of which was due to improvements to and better maintenance of track. Mechanical department expenses increased from 34,081,901 pesos to 43,548,661 pesos, or 27.78 per cent. Express department expenses increased from 4.803,588 pesos to 5,852,665 pesos, or 21.84 per cent; traffic department expenses decreased from 1,318,785 pesos to 1,257,341 pesos, or 4.66 per cent; and miscellaneous expenses increased from 154,687 pesos to 670,147 pesos, or 333 per cent. Other than operating expenses increased from 7,714,481 pesos to 11,227,349 pesos, as a result of increased traffic, especially war traffic for export, which necessitated the use of foreign cars and per diem payments.

"Net earnings" during the first eight months of 1943 amounted to 17,368,456 pesos, compared with 13,409,824 pesos in the same period of 1942, an increase of 29.52 per cent. These net earnings are before depreciation and maintenance reserves, which were not included in the accounting prior to May, 1943.

Ton-Kilometers Reach New High

The traffic handled by the National Railways, as measured in ton-kilometers, will establish a new high in 1943. For the first nine months, the gross ton-kilometers totalled 12,667,618,000, as compared with 11,530,434,000 in the same period of 1942, an increase of 9.9 per cent. Net ton-kilometers increased 13.1 per cent, amounting to 5,751,772,000 in the nine months of 1943, as compared to 5,086,871,000 in the nine months of 1942. During the first nine months of 1943, locomotive-kilometers totalled 30,790,111; freight train-kilometers, 13,118,194; passenger train kilometers, 7,936,386; and passenger car kilometers, 66,807,829.

As shown in the accompanying table, net tons per train kilometer increased from 394 in the first nine months of 1942 to 420 in the same period of 1943, reflecting heavier train and car loading, which latter increased from 27.2 tons per car to 28.1 tons. Gross tons per train-kilometer increased from 851 to 884 while the utilization of tractive power increased from 76.4 to 78 per cent. However, average freight train speed decreased from 21.7 k.p.h. to 20.2 k.p.h. owing to heavier trains and more switching at terminals. These factors caused gross ton-kilometers per train-hour to decrease from 18,507 to 17,852. The decrease in car-kilometers per car-day from 57.6 to 47.9 also denotes delays on road and in terminals.

Labor Relations Improving

Labor relations on the National Railways have shown some improvement during the year, especially since October, 1942, when the government removed the railways from employee management and placed them in the hands of experienced railway officers. Relations between the Union of Railway Workers and the management were somewhat strained at the beginning of the year because the Union demanded certain modifications in its collective labor contract pertaining to administrative freedom but the dispute was withdrawn when the government reminded the Union of its offer to co-operate. In the latter part of 1943, negotiations were under way with the Union looking toward the establishment of a divisional system of operation to replace the present departmental system. It is anticipated that better administration control, and greater efficiency in operation will result when the change is made.

Payroll Rises with Wages

Wages paid employees of the National Railways have increased considerably. A presidential decree termed the Emergency Compensation Salary issued in the latter part of 1942, increased the wages of employees earning less than 300 pesos a month from 1 to 50 per cent. This increased the payroll about 1,000,000 pesos a month. A second presidential decree issued in December, 1943, gave workers earning a maximum of 350 pesos a month a further 10 per cent increase and those earning more than that amount, 5 per cent.

Selected Operating Statistics

First 9 months 1943-1942

	1943	1942	Inc. or Dec.	Percent Change
Locomotive Klms. (Total)	30,790,111	29,259,105	1,531,006	5.2
Freight Train Klms.	13,118,194	12,310,411	807,783	6.6
Passenger Train Klms.	7,936,386	7,926,880	9,506	0.1
Mixed & Spcl. Klms.	2,806,863	2,784,196	22,667	0.8
Non-revenue Klms.	154.070	89.5O7	64,563	72.1
Total Train Klms.	24,015,513	23,110,994	904,519	3.9
Passenger Car Klms.	66,807,829	61,901,486	4,906,343	7.9
Freight Loaded Klms.	204,624,742	186,899,324	17,725,418	9.5
Freight Empty Klms.	83,831,266	84,176,203	344,937	0.4
Freight Total Klms.	288,456,008	271,075,527	17,380,481	6.4
Net Ton-Klms. (1,000s)	5,751,772	5,086,871	664,901	13.1
Gross Ton-Klms.	12,667,618	11,530,434	1,137,184	9.9
Total No. Cars loaded	385,814	375,162	10,652	2.8
Averages				
Net Tons per train Klm.	420	394	26	6.6
Gross tons per train Klm.	884	851	33	3.9
Speed per hr. (Klms.) frt.	20.2	21.7	1.5	6.9
Gross ton-Klms. per train hr.	17,852	18,508	6.56	3.5
Utilization of Tractive power	78.0	76.4	1.4	—
Frt. Loco. Klms. (daily)	179	185	6	3.2
Liters oil per 1,000 G.T.K. (Frt.)	43.1	42.2	0.9	2.1
Per cent loaded car Klms. to total	70.9	68.9	2.0	2.9
Car Klms. per car (daily)	47.9	57.6	9.7	16.8
Net tons per car	28.1	27.2	0.9	3.3
Cars on line daily	22,046	17,250	4,796	27.8
Klms. line operated	11,759	11,765	6	0.1

Higher labor costs and rises in material prices were reflected in repairs to cars and locomotives. During the 12 months ending with August, 1943, labor charges for coach repairs averaged 28.99 pesos per 1,000 kilometers run, compared with 26.20 pesos for the same period of 1942, an increase of 10.6 per cent while material charges averaged 20.69 pesos, compared with 17.23 pesos in the respective periods, an increase of 20.1 per cent. Labor for freight car repairs averaged 27.33 pesos per 1,000 kilometers run during the 12 months ending with August, 1943, as compared with 23.77 pesos in the corresponding period of 1942, an increase of 15 per cent, while material charges averaged 28.65 pesos and 30.64 pesos during the respective periods, an increase of 6.9 per cent. Backshop labor on repairs to locomotives rose from 241.57 pesos to 264.58 pesos per 1,000 kilometers run in the two periods, an increase of 9.5 per cent and material costs, from 163.94 pesos to 171.07 pesos or 4.3 per cent. Labor on running repairs to locomotives increased from 189.29 pesos to 207.39 pesos or 9.6 per cent, and material charges from 52.26 pesos to 79.42 pesos, an increase of 51.9 per cent.

1943 Railway Operations Reviewed

Outstanding feature lay in demonstrated ability of carriers to meet the rising tide of freight and passenger traffic offered to them and the generally satisfactory manner in which they met it

By Dr. Julius H. Parmelee

Director, Bureau of Railway Economics

EXTENSION of the American war effort into ever-widening combat areas, and the rapid rise in war production at home, absorbed the greater part of the economic and personal activities of the people of the United States during the year. The number of men and women in the armed forces increased from approximately 7,000,000 to 10,100,000 during the year. War expenditures rose from a monthly average of $4,367,000,000 in 1942 to $7,107,000,000 in 1943. Production of ships and planes, munitions and other implements of war attained quota levels or better. The United States was fast approaching, if it had not already reached, its goal as the "arsenal of democracy." While victory could not be charted in terms of an exact date or dates, many signs pointed to the fact that it was definitely on the way. Only the "when" remained a still unknown quantity as the year drew to a close.

More and more did transportation, and particularly rail transportation, come to be recognized in 1943 as an integral, indispensable part of the total war effort. Government officials freely testified to that fact, and in highest terms praised the accomplishment of the railroads in meeting their greatly increased service obligations. Practical testimony was also offered in the recognition by government of railroad needs in respect to the manpower and employment stabilization programs, allocation of equipment and materials, and other related problems. None of these problems were self-solvent, however, and many of them carried over into 1944 for further consideration and effort toward solution.

All Traffic Records Broken

The outstanding feature of railroad operations in 1943 lay in the demonstrated ability of the carriers to meet the rising tide of freight and passenger traffic offered to them, and the generally satisfactory manner in which they met it. As is shown in later sections of this review, all previous traffic records were surpassed by wide margins, and most of the efficiency factors were raised to new high levels.

The traffic and earnings pattern was quite different in 1943 from that of 1942. While in 1942 the rates of increase in the several items showed a generally accelerating tendency, a contrary trend developed in 1943. This was to be anticipated, and in fact was anticipated, since the war effort and the concomitant demand for transportation service in 1943 approached close to their respective wartime peaks. The tendency is well illustrated by breaking the year down into its four quarters, and showing the decelerating rate of increase in each quarter over the corresponding quarter of 1942. This is done in Table I, for ton-miles and passenger-miles, and for gross and net earnings.

Table I—Percentage Increase, 1943 over 1942, by Quarters

	Ton-miles	Passenger-Miles	Total revenues	Net railway operating income
1st quarter	29.4	99.8	41.0	53.9
2nd quarter	13.3	87.5	25.5	10.6
3rd quarter	10.2	58.5	15.7	D 13.5
4th quarter	5.5	17.6	10.4	D 39.2
Year	13.6	58.4	21.5	D 6.8

In the case of net railway operating income, an appreciable increase was experienced during the first quarter of 1943, and a much smaller increase in the second quarter (June, in fact, showing a decrease), with growing decreases in the third and fourth quarters. The net result for the year is an anticipated decrease of more than 6 per cent.

The general trends so well illustrated in Table I are likely to continue into 1944, the rate of deceleration depending upon a number of factors, such as the level of traffic, the freight rate situation in the second half of the year, the trend of prices, changes in tax rates, and the final outcome and effect of the wage negotiations under way at the close of 1943.

Public Recognized Railroad Performance

One of the few unsatisfactory developments of 1943 was the number of train accidents, rail failures, and other unfortunate events, which served as a stimulus to unusual and intensified safety efforts for the future.

The public generally recognized railroad performance in 1943, and the highly successful cooperative efforts of managements, men, shippers and travelers, and government agencies to accomplish that performance. At the same time, the public just as strongly deplored the action of railroad labor leaders in calling strikes for December 30, thus threatening to disrupt the smooth operation of the nation's largest and most important transportation machine. Railroad managements occupied the unfortunate position of interested bystanders in this situation, and deprecated the insistence of labor in exercising its so-called "economic power" in the midst of the most serious emergency this country has ever faced.

Traffic and Revenue Trends

Revenue carloadings, revenue ton-miles, and revenue passenger-miles for 1943, and for certain comparative years, are shown in Table II. An entry is included for the year 1929 for ton-miles, and for the year 1920 for

passenger-miles, those being the respective peak years prior to the present war.

Table II—Comparative Traffic Statistics

Revenue Carloadings (*thousands*)			
1943	42,350	1939	33,911
1942	42,819	1933	29,220
1941	42,289	1923	49,812
1940	36,358	1918	41,833
Revenue Ton-Miles (*millions*)			
1943	725,000	1933	249,223
1942	638,069	1929	447,322
1941	475,072	1923	412,772
1940	373,253	1918	405,379
1939	333,438		
Revenue Passenger-Miles (*millions*)			
1943	85,000	1933	16,341
1942	53,676	1923	37,957
1941	29,350	1920	46,849
1940	23,762	1918	42,677
1939	22,651		

Revenue Carloadings: Carloadings in 1943 approximated 42,350,000 cars, a decrease of 469,000 under 1942. This was the first time carloadings have decreased since 1938. The decrease in 1943 was due principally to the combined effect of ODT General Orders 1 and 18, which provided for a minimum weight limit on loadings of cars; these orders were effective during the whole of 1943, but during only a part of 1942.

Loadings of carload traffic showed an increase, 1943 over 1942, of two-tenths of one per cent. Loadings of l. c. l. traffic showed a decrease of 9½ per cent. The increases or decreases in both carload and l. c. l. traffic, compared with 1942, quarter by quarter, are shown in Table III.

Table III—Per Cent Increase (I) or Decrease (D) in Carloadings

	Carload	L. C. L.	Total
Jan.-March	I 2.6	D 37.6	D 4.9
Apr.-June	D 3.6	D 8.9	D 4.3
July-Sept.	I 0.9	I 12.7	I 2.1
Oct.-Dec.	I 1.1	I 13.8	I 2.5
Year	I 0.2	D 9.5	D 1.1

The second-quarter decrease in carload traffic reflected the coal strike, while the decreases in l. c. l. loadings in the first and second quarters are the result of the operation of ODT Order No. 1, which was not effective during the first four months of 1942.

Table IV distributes the carloadings of 1943 among the eight commodity or classification groups, and shows the increase or decrease in 1943 over or under the corresponding totals for 1942.

Table IV—1943 Carloadings, by Commodity Groups (thousands)

	1943	Increase over 1942 Number	Per cent
Miscellaneous	19,538	D 218	D 1.1
Coal	8,486	125	1.5
Mdse. l.c.l.	5,052	D 533	D 9.5
Ore	2,822	D 190	D 6.3
Grain and grain products	2,644	464	21.3
Forest products	2,221	D 229	D 9.4
Live stock	839	95	12.7
Coke	748	17	2.3
Total	42,350	469	D 1.1

Although total carloadings in 1943 were slightly less than in 1942, the average load per car was the greatest in history, while the average haul per ton of freight, in miles, was greater than in any prior year. For these reasons, ton-miles of freight handled in 1943 exceeded those of any previous year, despite the fact that carloadings were only slightly greater than in 1918.

Chart A compares the record volume of ton-miles in 1943 with the preceding four years, and with 1929 and 1918.

Revenue Ton-Miles: The 1943 ton-mile aggregate approximated 725,000,000,000, an increase over 1942 of nearly 14 per cent. Reference to Table II will show that the ton-mile volume of 1943, breaking all previous records (as it did also in 1941, and again in 1942), was 1.6 times as great as in 1929, 1.8 times as great as in 1918, and 2.2 times as great as in 1939.

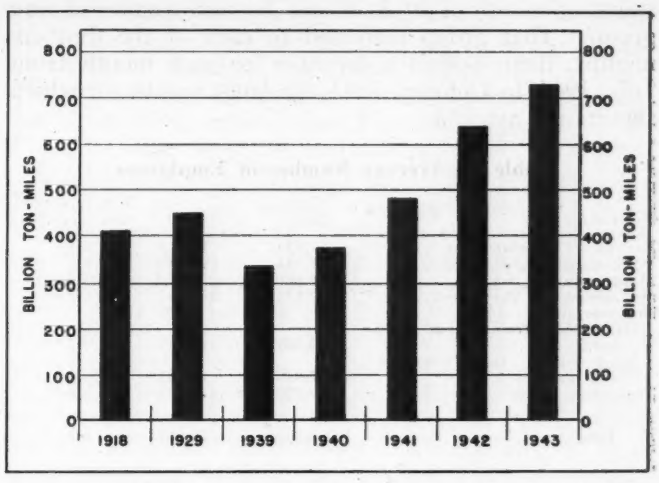


Chart A—Revenue Ton-Miles of Freight, Class I Railways

Revenue Passenger-Miles: Passenger-miles, as shown in Table II, also reached a record high in 1943, as it had done in 1942. The volume of passenger traffic in 1943 was 80 per cent greater than in the previous record year of 1942, and nearly twice as great as in the prewar record year of 1920. It was almost exactly twice the volume attained in 1918.

Chart B shows the volume of passenger-miles in 1943, compared with the preceding four years, and with 1920 and 1918.

Employment and Wages

Total rail employment in 1943 was greater than in 1942 by 6.6 per cent, averaging 1,355,000 persons in 1943 and 1,270,687 persons in 1942.

Rail employment by principal groups in the two years was as indicated in Table V.

Average employment was greater for each group than in 1942. Not only that, but each employee group showed an increase during each month of 1943 over the corre-

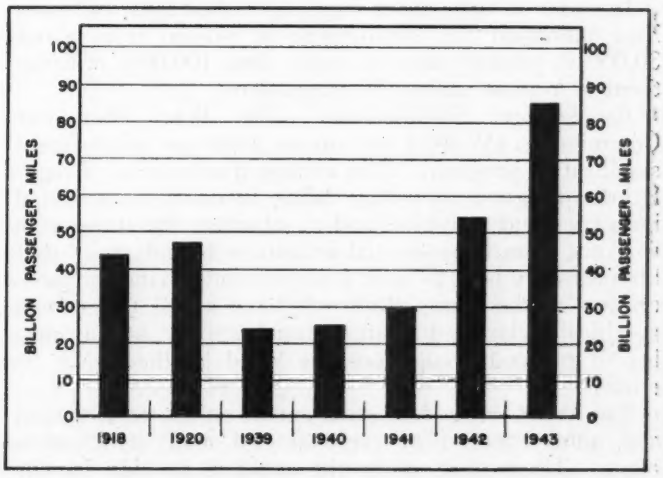


Chart B—Revenue Passenger-Miles, Class I Railways

sponding month of 1942, except the maintenance of way group. That group increased in each of the first six months, then showed a decrease for each month from July, 1943, to October, 1943, the latest month for which reports are available.

Table V—Average Number of Employees

Group	1943	1942	% increase 1943 over 1942
Executives, officials, etc.	13,939	13,015	7.1
Professional, clerical, etc.	217,944	199,618	9.2
Maintenance of way	276,860	263,472	5.1
Maintenance of equipment	372,173	350,297	6.2
Transportation:			
Other than train, engine, and yard	159,162	147,217	8.1
Yardmasters, switch tenders and hostlers	17,059	15,393	10.8
Train and engine	397,998	281,675	5.8
Total	1,355,135	1,270,687	6.6

Manpower in the railroad industry in 1943 continued to be a growing problem. Its seriousness is reflected in the total of 103,408 personnel needs reported on November 1, 1943. By general groups, the personnel needs, as tabulated and published by the Railroad Retirement Board, were classified as follows:

Table VI—Personnel Needs, November 1, 1943

Group	Number	Per cent
Executive, official and professional	213	0.2
Clerical	2,084	2.1
Maintenance of way	54,570	52.8
Maintenance of equipment	29,410	28.4
Transportation	16,525	16.0
Miscellaneous	606	0.5
	103,408	100.0

The greatest shortage of personnel is found in the maintenance of way classification—52.8 per cent of the total—a relative situation that prevailed in every month of the year. Not only that, but the proportional need for employees was greatest in the maintenance of way classifications. For example, as of November 1 the need for personnel in the maintenance of way group was 20.5 per cent, or 20½ persons for each 100 then at work. The corresponding percentages were 7.8 per cent for maintenance of equipment forces, 3.4 per cent for transportation men of all classes, and an overall average of 7.6 per cent for all employee classes combined.

This situation was throughout the year more serious in the Western District, and especially on the Pacific Coast, than elsewhere.

Up to November 1, 1943, more than 200,000 railroad employees had entered the armed services of the United States, and the number was growing monthly.

In order to help offset manpower shortages, railroads have increased the employment of women from about 30,000 in prewar years to more than 100,000, utilizing them in a great variety of occupations.

Employment Stabilization. The War Manpower Commission (WMC) set up in 1943 an employment stabilization program. This consisted of a series of regulations designed to reduce labor turnover in essential industries and activities, and to stimulate the transfer of workers from non-essential industries to industries that are necessary both to basic economy and to efficient prosecution of the war. Railroads have at all times been specifically classified as an essential activity, and a number of railroad occupations are listed by the WMC as critical.

The WMC relies to a great extent on the development and administration of regional and area stabilization plans. These plans cover the country, provide for the orderly recruitment of new workers when additional labor is needed, and regulate in-migration according to the capacity of community facilities. They also prescribe hiring procedures for types of labor particularly needed in war industry, determine the conditions under which a change of employment may be authorized, and the means by which it can be expeditiously handled.

When WMC first inaugurated its controls over manpower, railroads were temporarily exempted from stabilization programs, but a series of regulations effective in August, 1943, brought the railroad industry into the scheme. Since that time, as before, the railroads have worked harmoniously with national and local WMC officials to bring about, within the prescribed regulations, the best possible solution of the railroad manpower problem, and have complied with all applicable rules and regulations. In addition, railroad representatives participate as members in the national and the 12 regional WMC management-labor policy committees, and in a large number of the area committees as well.

In order to be of the largest possible service to the railroad industry, and also to aid WMC in its stabilization of employment, the Association of American Railroads compiled and issued a 72-page "Railroad Manual on Employment Stabilization," which is used as a handbook by the railroads in their efforts to recruit needed workers, as well as a guide to compliance with WMC regulations.

Payroll. The railway payroll for 1943 aggregated $3,533,000,000, an increase of 20 per cent over 1942. This reflects not only increased wage rates authorized during 1943, but increased employment and hours of service. Except for the year 1920, when railroad personnel for the first and only time exceeded 2 million men, the payroll of the carriers in 1943 was the largest in American railroad history.

Average annual earnings of rail employees increased from $2,045 in 1941 to $2,307 in 1942, and increased again to $2,605 in 1943. Average hourly compensation increased from 78.0 cents in 1940 to 85.2 cents in 1942, and again to 92.9 cents in 1943.

Table VII shows average number of employees, aggregate payroll, and average compensation of employees during each of the years 1939 to 1943, inclusive, and for 1923 and 1933; the figures for 1943 are partially estimated.

Table VII—Employees and Compensation

Year	Average number	Compensation (millions)	Average per employee	Compensation Per hour (cents)
1943	1,356,000	$3,533	$2,605	92.9
1942	1,270,687	2,932	2,307	85.2
1941	1,139,925	2,332	2,045	78.0
1940	1,026,848	1,964	1,913	75.1
1939	987,675	1,863	1,887	74.9
1933	971,196	1,404	1,445	62.9
1923	1,857,674	3,004	1,617	61.0

Wages. Railroad wages, as estimated above for 1943, reflect the increases in wage rates authorized by the Economic Stabilization Director late in 1943. These increases followed a long series of negotiations.

The so-called "nonoperating employees" made demands on the railroads in September, 1942, for an increase in wage rates of 20 cents an hour. Mediation of this dispute having failed, a National Railway Labor Panel Emergency Board (the Sharfman Board) investigated the dispute in hearings in March and April, 1943. Its report, dated May 24, recommended an increase of 8 cents per hour, retroactive to February 1, 1943. The Economic Stabilization Director, by order dated June 22, 1943, disapproved this recommendation.

On August 7, 1943, representatives of the carriers and the nonoperating employees signed an agreement to in-

crease existing rates of pay by 8 cents an hour, for reasons believed by the carriers to bring the increase within the requirements of the government's wage stabilization program. This agreement was "subject to any existing requirements of law," and to date of this writing has not received governmental approval.

On October 16, 1943, the President appointed a Special Emergency Board (the Shaw Board) to reconsider the claims of nonoperating employees. After brief hearings, this Board on November 4 recommended a graduated scale of increases ranging from 10 cents an hour for the lowest hourly rated employees to 4 cents an hour for the highest hourly rated employees, retroactive to February 1, 1943. The Economic Stabilization Director, in an opinion dated November 8, stated that he would not disapprove these recommendations, but representatives of the nonoperating employees announced that they were unsatisfactory and unacceptable.

On November 1, 1943, Senator Harry S. Truman of Missouri introduced a resolution in the Senate—S. J. Res. 91—designed to legalize the terms of the nonoperating agreement of August 7. Hearings were held by the Committee on Interstate Commerce, which on December 3 reported it favorably, and the Senate passed it on December 9. A similar resolution—H. J. Res. 187—was pending in the House of Representatives when Congress adjourned for the year-end.

Representatives of the nonoperating group had on October 25 circulated a strike ballot, returnable November 25. Although they stated that "no strike will occur until all reasonable efforts to secure a settlement have been exhausted," their leaders on December 21, after Congress had adjourned without action on the joint resolution, issued a strike call for December 30.

The "operating" group of employees—enginemen, firemen, conductors, trainmen, and switchmen—filed formal demands for wage increases on January 25, 1943, proposing an increase of 30 per cent in their existing basic daily rates, with a minimum money increase of $3.00 per day.

Mediation of this dispute with the operating groups having failed, a National Railway Labor Panel (the Stacy Board) was appointed. This board held hearings in June and on September 25, 1943, recommended an increase of 32 cents per minimum basic day, or 4 cents per hour, retroactive to April 1, 1943. The Economic Stabilization Director, on October 16, announced that he would not disapprove this recommendation, and the railroads thereupon put the increased rate into effect.

Representatives of the operating group notified the railroads that these increases were not satisfactory. They circulated a strike ballot on October 23, as a result of which the leaders on December 15 issued a strike call, to become effective over a period of days beginning December 30.

As this article went to press Washington authorities were making efforts to obviate the threatened strikes on December 30, either by working out wage agreements with the operating forces that would be approved by the director of economic stabilization, or in default of such agreements, by putting government control on operations into effect.

A National Railway Labor Panel (the Swacker Board) was appointed on February 20, 1943, to investigate facts and report recommendations for the settlement of a long standing dispute involving the basis of pay for engineers and firemen on, and the manning of, Diesel and electric locomotives. This Board recommended that the present basis of pay (weight on drivers) be retained; that the weight-on-drivers classification and wage differentials by intervals be extended beyond the present maximum limits; that two men should be in the cab, at all times, on multiple-unit Diesel locomotives in high speed streamlined or main line passenger trains; finally, that if an extra man is needed in the engine room, he should be taken from the ranks of firemen.

Employee representatives declared the recommendations of the Swacker Board to be unsatisfactory. Subsequently, on August 13, 1943, the Eastern railroads, and on November 27, 1943, the Western railroads entered into agreements with the firemen's organization to put into effect rates of pay for additional graduations on locomotives. Graded rates in lieu of present ungraded pay rates beyond existing weight limits were provided, the additional graded rates being slightly higher than the Board recommended. The agreements also included the Board's recommendation as to the manning of multiple-unit Diesel-electric locomotives in high-speed, streamlined, or main line through passenger trains. In connection with the manning of the 44-ton Diesel-electric locomotives, a fireman (helper) is provided when engine is used outside designated switching limits.

It is clear, from this recital of the situation regarding wages and manpower shortages, that at the close of 1943 the railroads were faced with a number of serious problems.

Railway Equipment and Materials Situation

As in 1942, continuing shortages in critical war materials throughout 1943 restricted fulfillment of railroad programs with respect to new equipment and maintenance. As a result of two years of such shortages, railroads experienced during the last half of 1943 an extremely tight situation with respect to equipment of all kinds.

Fortunately, the outlook for 1944 is for a considerable easing of the materials situation, and railroads will probably be able to obtain more new equipment than in either of the past two years. Also, it seems likely that freight cars of all-steel construction will be built after the second quarter of 1944, and that alloy steels will be available to the railroads in somewhat greater quantities at that time than in the past two years.

The railroad programs for new equipment and for new rail in 1943 and 1944 are shown below, together with actual installations during the 1943 period. As in past years, the equipment program is based on the 12 months from October to October, while the rail program is on a calendar year basis.

	1943 Program	1943 Deliveries	1944 Program
Locomotives	878	620	1,200
Freight cars	80,000	27,360	50,000
Steel rail (net tons)	2,100,000	1,500,000	2,600,000

With the exception of steel rail, fulfillment of the 1944 program, as indicated above, seems assured. Locomotive production in November and December averaged better than 100 per month, and if that rate is continued throughout 1944 the locomotive program will be met. Construction of 50,000 new freight cars in 1944 has been authorized by the War Production Board. With regard to steel rail, authorizations for 1,825,000 net tons have been made to date, but that amount may be increased by later authorizations.

Table VIII shows the number of units of equipment installed by Class I carriers during each of the five years 1939 to 1943, inclusive. The table includes also the number of units on order at the close of each of those

years. Figures for 1943 represent only the first 11 months of the year.

Table VIII—Equipment Installations

	Installed during year	On Order
Steam locomotives:		
1943 (11 mos.)	380	387
1942	308	355
1941	161	258
1940	126	115
1939	100	51
Electric and Diesel:		
1943 (11 mos.)	276	617
1942	404	533
1941	472	288
1940	293	91
1939	220	66
Freight cars:		
1943 (11 mos.)	26,433	36,253
1942	63,009	27,061
1941	80,502	74,897
1940	65,545	35,702
1939	24,528	37,099

The trend in the equipment situation during the first four years of the war is outlined below for locomotives, for freight cars, and for passenger cars. The statistics relating to locomotives and freight cars show a remarkable achievement on the part of the railroads, in reducing the percentage of unserviceable locomotives from 19.1 per cent in 1939 to 5.1 per cent in 1943 and the percentage of bad-order freight cars from 11.9 to 2.8 per cent.

Locomotives. During the four-year period from October 1, 1939, to October 1, 1943, railways were unable to maintain their locomotive ownership at the level existing at the beginning of that period. This is indicated in Table IX, below.

Table IX—Locomotive Ownership

	October 1 1939	October 1 1943
Total railroad ownership	42,778	41,907
In or awaiting shop for Class repairs	8,177	2,128
Per cent	19.1	5.1
Number serviceable	34,601	39,779

As the number of new units installed during the four-year period did not equal the number of units retired, the ownership of locomotives on October 1, 1943, totaled only 41,907 units, a decrease of 871 locomotives compared with the ownership four years earlier.

Although locomotive ownership was less in 1943 than in 1939, the number of unserviceable locomotives was reduced to such an extent that the number of available serviceable units increased from 34,601 on October 1, 1939, to a total of 39,779 units on October 1, 1943, an increase of 5,178.

Freight Cars. The trend in freight car ownership from October 1, 1939, to October 1, 1943, is shown in Table X.

Table X—Freight Car Ownership

	October 1 1939	October 1 1943
Total railroad ownership	1,643,898	1,746,995
Unserviceable	194,890	48,445
Per cent	11.9	2.8
Number serviceable	1,449,008	1,698,550

Railroad ownership of freight cars, during the four years to October 1, 1943, showed a net increase of 103,097 cars, or 6.3 per cent. However, the number of serviceable cars increased by 249,542 cars or 17.2 per cent. The much larger increase in serviceable cars resulted from the marked reduction in number and percentage of bad-order cars.

Passenger Cars. The number of passenger-carrying cars owned by railways of Class I and the Pullman Company (exclusive of dining, lounge, baggage, mail, and express cars) as of December 31, 1939, and November 1, 1943, is shown by principal classes in Table XI.

Table XI—Passenger Carrying Cars

	December 31 1939	November 1 1943
Coach and coach combination	20,825	20,721
Parlor cars	900	463
Sleeping cars	6,362	7,022
Total	28,087	28,206
Number air condition	11,715	13,301

No new passenger cars for civilian use have been constructed during the war period. Construction of 1200 troop sleepers and 400 troop kitchen cars has been authorized and some of that equipment is already in service, with the remainder to be available early in 1944.

About half of all sleeping cars and about one-third of all coaches are in continuous use handling organized troop movements. A considerable part of the space on regular trains is used by soldiers, sailors and marines, either traveling under orders or on furlough.

Stored and Surplus Units. Stored serviceable locomotives averaged 645 during 1943, compared with 1040 in 1942. The maximum during the year was on August 1, when there were 733 stored serviceable locomotives, while the minimum was on May 1, when there were 534. Freight car surplus ranged from a high of 81,512 cars during the first week in June (when there was a stoppage in coal production) to a low of 13,570 cars during the week beginning October 23. The minimum in 1942 was 30,447 surplus cars, for the last week in October.

Car Shortages. Because railroad programs for new freight cars were not fulfilled in 1942, and again in 1943, there were not quite enough cars to meet all demands in 1943, particularly during the last four months of the year. Car shortages were reported in 27 of the first 50 weeks of the year, but in no week was the shortage serious, the maximum being in the first week of November when the shortage averaged 5013 cars daily. The tight locomotive situation, as well as manpower difficulties, delay car movements and were important contributing factors to these car shortages.

The Bureau of Railway Economics computes every six months an index of unit prices paid by railways for materials and supplies. This index stood at 163.6 in June, 1943, the base being the month of May, 1933, as 100. The corresponding component indexes on that same date were 176.6 for fuel, and 157.5 for all materials other than fuel.

Table XII compares these price indexes for certain selected dates from June, 1939, just prior to the outbreak of the present war, to June, 1943.

Table XII—Railroad Material Prices

	Material and Supplies (Other than fuel)	Fuel (Coal and fuel)	All Material
May, 1933	100.0	100.0	100.0
June, 1939	125.3	135.4	128.6
December, 1940	133.7	135.1	134.1
December, 1941	146.4	148.4	147.0
December, 1942	153.1	155.2	153.8
June, 1943	157.5	176.6	163.6

Comparing the price indexes of June, 1943, with those of June, 1939, the increased cost of railway material and supplies over the four-year war period was 30.4 per cent for fuel, 27.2 per cent for materials other than fuel, and 25.7 per cent for all material.

Legislation

The 78th Congress, which convened January 6, recessed July 8, reconvened September 14, and remained

in session until December 21, gave its major attention to matters relating to the war effort at home and abroad. This first session enacted a comparatively limited amount of legislation directly affecting railroad interests, although it passed much general legislation—such as taxing acts—of as great importance to railroad companies as to other corporations. Certain measures of general or special concern to rail carriers are briefly noted below.

Freight Tax Change (Public Law 180—H. R. 3338). This act removed the exemption from the tax on transportation of property, which had applied to non-government traffic moving on government-operated transportation facilities, especially the Federal Barge Lines. Approved November 4.

Freight Forwarder-Motor Vehicle Bill (Public Law 185—H. R. 3366). This measure extended for 18 months from November 16, 1943, the period during which freight forwarders are required to discontinue joint rate arrangements with motor carriers, and substitute assembling and distribution rates published by the carriers. Approved November 13.

Communications Act Amended (Public Law 4—S. 158). This amendment to the Communications Act of 1934 permitted consolidations and mergers of domestic telegraph companies. The Western Union and Postal Telegraph companies have been merged under this act. Act approved March 6.

Cole Pipe Line Act Extended (Public Law 103—H. R. 2530). This bill extended the life of the Cole Pipe Line Act (Public Law 197—77th Congress) to June 30, 1945. That act granted the power of eminent domain to pipe line companies under certain circumstances, and authorized the Federal Government to construct pipe liens necessary for national defense, provided such lines cannot be privately constructed. Approved June 30.

Appropriations of Interest to Railroads (Public Law 90). The Independent Offices Appropriation Bill contained the following appropriations for agencies the activities of which are of interest to rail carriers: Interstate Commerce Commission, $8,912,000 for the fiscal year ending June 30, 1944: Board of Investigation and Research, $275,000 with which to function until September 18, 1944; Public Roads Administration, $133,000,000 for the fiscal year ending June 30, 1944; National Resources Planning Board, $50,000 with which to liquidate by August 31, 1943. Approved June 26.

Pay-as-You-Go Tax Bill (Public Law 68—H. R. 2570). This act provided a 20 per cent withholding tax on salaries and wages, effective July 1, 1943. It also cancelled 75 per cent of the 1942 income tax for all persons with a total tax liability above a specified minimum. Approved June 9.

Court and Commission Action

Illinois Commutation Fares. The United States Supreme Court, on April 12, upheld the contention of the Illinois Commerce Commission that the Chicago & North Western could not, without authority from the State Commission, apply to intrastate commutation fares the 10 per cent increase in passenger fares authorized by the Interstate Commerce Commission in its order (Ex Parte 148) of January 21, 1943.

National Mediation Boards' Authority Upheld. The United States Supreme Court, in three decisions handed down November 22, upheld the authority of the National Mediation Board in settling jurisdictional disputes between railway unions, and in directing the classification and grouping of employees in voting on such questions. These decisions, in effect, establish the principle that no appeal can be taken to the courts from the Board's findings in such disputes.

Pullman Anti-Trust Suit. A three-judge expediting court for the District Court for the Eastern District of Pennsylvania handed down on April 20 its opinion in the government's anti-trust suit, which was filed in 1940 against the Pullman Company. The court concluded that there had been a violation of the Sherman Anti-Trust Act, but held that the final question is the equitable relief to be had which would involve the correction of certain practices deemed objectionable.

Train Limit Order Reaffirmed. The Interstate Commerce Commission on November 19 made public its findings in Ex Parte No. 156, in which investigation was made of the contention of four railway operating unions that the Commission had exceeded its wartime powers in suspending state laws limiting the number of cars in a train. The Commission found that its suspension order was "in accord with the national transportation policy declared in the Interstate Commerce Act and fully authorized by law."

Office of Defense Transportation

The Office of Defense Transportation continued during 1943 to carry out the purpose for which it was established, namely, "to insure maximum utilization of the domestic transportation facilities of the nation for the successful prosecution of the war." While the general frame-work of the ODT program was set up in 1942, new refinements were added during 1943. In addition, special measures were taken to meet new problems.

An Executive Order of January 4, 1943, extended the authority of the ODT to include local passenger transportation equipment such as buses, street cars, ferry boats, and other vehicles and vessels carrying nine or more passengers in public or private carrier service. The intent was to promote more efficient use of transportation facilities in congested production areas. Under this authority, the ODT on March 17 froze these vehicles in their then service. The ODT order (No. 35) also provided that such equipment might not be bought, leased, or requisitioned without ODT approval. The order exempted combat equipment of the armed forces from its provisions, but required various civilian agencies of the Federal Government to file with ODT, by May 15, an inventory of their transport equipment.

Pursuant to a mutual understanding among government agencies in control of petroleum distribution, the ODT on July 2 was assigned the duty of determining the allocation of petroleum products among all classes of transport, within the amount allowed by the Petroleum Administrator for War. The ODT already included in its functions presentation to the Petroleum Administrator for War of estimates of the overall petroleum requirements of all forms of transportation.

On January 9, ODT announced establishment of a Division of Material and Equipment Requirements, to perform functions growing out of designation of the ODT as the claimant agency for domestic transportation under the Controlled Materials Plan of the War Production Board.

Late in April, President Roosevelt appointed Joseph B. Eastman, Director of the Office of Defense Transportation, as one of three additional members of the War Production Board.

ODT action is implemented partly through the exercise of cooperative and suggestive practices, and partly through the issuance of general and special orders. Prior to the beginning of 1943, thirty-two general orders had been

promulgated. During 1943, nine additional general orders were issued. Some of the more important developments resulting from these orders, and from other ODT activities, are summarized below.

Railroads

General Order 15, under which ODT permits would have been required after April 1 for the movement of coal by rail or truck inland from docks on the New England coast, was indefinitely suspended on March 31, because shippers in the area had taken steps to utilize available transportation facilities to greatest advantage.

General Order 18A, effective November 1, revised and superseded General Order 18. The new order, like its predecessor, established loading requirements for carload freight. Provision was made for the loading of merchandise freight in a car with carload freight when such loading is authorized by special ODT permit.

Motor Transport and Water Carriers

Early in January, an amendment to General Order No. 11 directed that intercity buses be loaded to capacity where passengers are available. "Capacity" is defined as 120 per cent of the standard rated load-carrying capacity of the tires.

ODT Exemption Order 23-2, effective March 1, permitted motor carriers making emergency deliveries for the Army, Navy, Maritime Commission and War Shipping Administration to operate their trucks faster than 35 miles per hour, provided such trucks carry certificates of exemption and display emergency pennants.

Effective March 15, ODT banned virtually all special or exclusive privately-owned bus service not essential to the war effort, such as special transport to race tracks and country clubs, and special services provided for tenants of apartment buildings and hotels, or for patrons of stores and shopping centers.

Under new procedures announced by the ODT in April and July, common carriers by motor truck and intercity bus operators were granted immunity from prosecution under the anti-trust laws when operating on a joint basis in accordance with special ODT conservation orders. The procedures were worked out cooperatively by the War Production Board, the Department of Justice, and the ODT.

Late in 1942, upon the recommendation of ODT, the War Production Board approved a barge, tugboat, and towboat building program, for the primary purpose of facilitating the eastward barge movement of oil. The estimated cost of the program was $75,000,000. The construction schedule included 500 wooden tank barges, 21 steel hull towboats, and 100 tugboats. Due to an easing of the oil transportation situation, the program was sharply curtailed in 1943. The ODT announced on May 13 that 168 all-steel petroleum tank barges had been substituted for 195 of the wooden barges. Further cuts and changes were made from time to time, reducing the number of wooden barges and eliminating two towboats and 13 steel tank barges. Of the remaining 155 steel tank barges, 100 will be completed while 55 will be converted to dry-cargo units of standard hopper construction.

Railroad Retirement Board Operations

Railroad Retirement: Recipients of railroad retirement annuities and pensions as of October 31, 1943, numbered 162,232, compared with 158,283 on October 31, 1942, and 155,360 on October 31, 1941.

The net increase in the total number of beneficiaries resulted from a decline (deaths) in the number of pensioners (persons transferred from the voluntary rolls of the carriers in 1937), which was more than offset by an increase in the number of persons receiving annuities under the Railroad Retirement Act, as shown below:

As of October 31	1943 over 1942	1942 over 1941
Increase in annuitants	7,170	6,337
Decrease in pensioners	3,221	3,414
Net increase	3,949	2,923

Total benefit disbursements during October, 1943, aggregated $11,221,000, compared with $10,791,000 for the same month of 1942, reflecting an increase of $5,160,000 in the *annual* level of disbursements between these two periods.

Retirement Tax Accruals

Retirement tax accruals chargeable against the railroad income account during the first ten months of 1943 amounted to $90,000,000, compared with $71,224,000 for the corresponding period of 1942. This increase of $18,776,000, or 26.4 per cent, was partly attributable to increased employment and payrolls, and partly to the increase in payroll tax rate, which rose from 3 per cent to 3.25 per cent on January 1, 1943. Similar amounts and rates were, of course, paid by the employees out of their wages.

Briefly summarized, total retirement tax accruals, interest, and expenditures for the entire period of operation from the beginning of 1937, to October 31, 1943, are as follows:

Tax accruals		$1,014,862,000
Interest		17,580,000
		$1,032,442,000
Less:		
Benefit payments	$732,384,000	
Administrative expenses:		
Retirement administration	19,911,000	
Prior service data	8,729,000	
		761,024,000
Balance		$271,418,000

While the balance shown above includes taxes accrued but not collected, it does not represent the actual balance to the credit of the Railroad Retirement Account, since Congressional appropriations to October 31, 1943, exceeded tax accruals. The actual balance as of that date was $333,566,873, of which $332,000,000 was invested in 3 per cent Treasury notes.

Railroad Unemployment Compensation: Railroad unemployment insurance benefit payments again declined, and precipitately, during 1943. Disbursements during the first 10 months of 1943 amounted to only $842,213, compared with $5,964,318 for the corresponding period of 1942, and $12,998,591 for the same period of 1941.

Tax accruals for the first 10 months of 1943 aggregated $83,100,000 compared with $71,224,000 for the same period of 1942. This was an increase of $11,876,000 or 16.7 per cent. These taxes, at 3 per cent, are paid wholly by the employers.

The progressively widening spread between tax receipts and benefit disbursements further swelled the already large balance to the credit of the unemployment insurance reserve.

The financial results of operation of the unemployment system, with the status of the Railroad Unemployment Insurance Account, are summarized below for the entire

period of operations from July 1, 1939, to October 31, 1943.

Receipts:		
Net tax contributions	$299,370,221	
Transfers from state accounts	105,900,769	
Transfers from administration fund	29,082,667	
Interest on investments	17,328,103	
Total		$451,681,760
Expenditures		
Net benefit payments		43,305,749
Balance or reserve		$408,376,011

The net tax contributions shown above represent 90 per cent of the tax collections, as 10 per cent is transferred to, and separately accounted for in, an administration fund. Administrative expenses of the system for the entire period from July 1, 1939, to October 31, 1943, including expenditures on account of employment service operations, amounted to $14,761,822.

The Board's employment and placement service has been very active during the war period, and its services in recruiting personnel for the railroads have greatly aided the manpower situation. The Board operates under a definite agreement with the War Manpower Commission, which has assigned to it certain referral and other functions performed for general industry by the United States Employment Service.

Board of Investigation and Research

The Transportation Act of 1940 created a temporary Board of Investigation and Research, the life of which will expire September 18, 1944. The Board originally consisted of Messrs. Nelson Lee Smith, of New Hampshire, chairman; Robert E. Webb, of Kentucky, vice-chairman; and C. E. Childe, of Nebraska. They assumed office August 22, 1941. Mr. Smith resigned October 25, 1943, to become a member of the Federal Power Commission. Mr. Webb is now acting chairman.

So far, the Board has made extensive research in the five following principal activities for which it organized itself: (1) the relative economy and fitness of carriers; (2) public aids to carriers; (3) carrier taxation; (4) interterritorial freight rates; and (5) practices and procedures of governmental control of transportation. During the year a report on Item 4 was issued, while reports on the other phases are in the making.

Item 1. Investigation of the relative economy and fitness of the several types of carriers constitutes the principal task of the Board. Its studies of this subject are divided into technical and economic phases, the economic phase dealing with carrier accounting and statistics, passenger, mail, and express service, while the technical phase deals with railroad terminal operation; design of roadway, tracks, bridges, and structures; design and capacity of locomotives, freight and passenger equipment, including auxiliary units; and economy and efficiency in the construction and use of all.

Item 2. Public aid to carriers is historical, generally controversial and often devoid of sound economic basis. The Board hopes to suggest some broad policy according to which public aid should or should not be extended to carriers.

Item 3. Certain carrier groups contend that they are unduly handicapped in competition with other agencies or transport, because of relatively heavy taxation. The Board is seeking to develop factual data that will enable legislators to determine more definitely, and with greater accuracy, how to resolve the complex issues involved.

Item 4. The Board issued a 498-page report on September 24, 1943, dealing with interterritorial freight rates. The report recommended legislation designed to establish "uniformity of freight classification and class-rate scales as the standard to be applied throughout the United States, except where departures from uniformity may clearly be shown to be required."

Item 5. The purpose of the study of procedures is to evaluate proceedings that are slow and expensive rather than quick and inexpensive; procedures not always suited to the ends desired, and areas of legal uncertainty that interfere with the efficiency of administration.

The Board on November 24, 1943, issued a report on rate-making and rate-publishing procedures. This covered railroad, motor and water carriers, and generally approved the so-called "bureau" method of ratemaking.

The Competitive Situation

Competitive transportation conditions which prevailed in 1942 were further intensified in 1943. A mounting volume of traffic, resulting from augmented war effort, coupled with the twin handicaps of a growing scarcity of equipment and materials and manpower shortages, created an increasingly tight transportation situation, in which practically every mode of transport was utilized to capacity.

As heretofore, the railroads were called upon to bear the major portion of the transportation burden. Continued disruption of normal water carrier operations and a progressively worsened condition with respect to gasoline, rubber, and motor equipment, caused further diversion of traffic from those agencies to rails. Typical of these shifts were movements of coal into New England, and of lumber from the Pacific Northwest. Due to dislocation of New England shipping routes, 10 million tons of coal were shifted to the railroads during the 1942-1943 fuel year. Lumber shipments by rail from the west coast are several times heavier than before the war. The oil transport situation was relieved to some extent by construction of new pipe lines, sponsored largely by the Government, and by a greater movement of this commodity by rail carriers.

The general competitive picture was highlighted by two significant phases. Under leadership of the Office of Defense Transportation, supreme efforts were made by all agencies of transport to utilize their facilities to the limit in moving the war load, at the same time that competing agencies cooperated with each other to attain war transportation objectives. It is manifest, on the other hand, that every agency of transport is laying plans to enlarge and improve its facilities, preparatory to engaging in more intensive postwar competition than ever before.

Total transportation service rendered in the United States in 1943 again outdistanced all previous records. The aggregate ton-mile figure for 1943 largely exceeded that of 1942, itself an all-time peak record in the handling of freight traffic. The combined domestic freight movement of all transport agencies aggregated 1,018 billion ton-miles in 1943, compared with 925 billion ton-miles in 1942. In passenger service, the several commercial agencies of transport performed an aggregate of 122 billion passenger-miles in 1943, compared with 82 billion in 1942.

The railroad proportion of total domestic freight traffic increased from about 62 per cent in 1939 to nearly 72 per cent in 1943. Similarly, the railroad proportion of commercial intercity passenger increased from about 61 per cent in 1939 to more than 70 per cent in 1943. The railroads in 1943 handled 95 per cent of the increase over 1942 in total domestic freight movement, and 80 per cent of the total increase in passenger travel.

These facts again demonstrated the dependence of the country upon the railroads for transportation service in an emergency.

The following are some of the significant developments in 1943, affecting the several agencies of transport other than railroads.

Motor Transport

In an effort to relieve the shortage of motor equipment, the War Production Board on November 1 authorized the resumption of limited production of new trucks, buses, and commercial trailers for civilian use. Production fell, however, behind the quotas. Of an authorization of 7,500 heavy duty buses, 5,600 truck-trailers, and 3,000 integral buses, the ODT estimated that not more than 100 heavy duty trucks, 2,500 truck-trailers, and 1,200 integral buses would be produced in 1943. As a minimum requirement for 1944, the ODT asked the War Production Board to authorize 80,000 medium and heavy trucks, 25,000 truck-trailers, and 7,000 buses. Order for the buses has been approved, but the truck program is still pending.

Common carrier truck lines operating within Trunk Line territory, and between Trunk Line and New England territories, were authorized by the Interstate Commerce Commission to make a general increase of 4 per cent in their rates and charges, effective October 4, 1943.

The Commission on November 15 denied rate increases of some 12½ per cent to common carrier truck operators operating in New England, and between certain New Jersey and New York areas, and New England, but indicated that a 4 per cent increase would be approved.

Water Transport

The Senate Commerce Committee and the House Rivers and Harbors Committee adopted a series of resolutions, calling upon the Army Engineers to review their previous reports with a view to determining the advisability of increasing to 12 feet the present 9-foot channel depth of various inland waterways, including the Upper, Middle, and Lower Mississippi, and the Illinois river.

The House Rivers and Harbors Committee, on November 16, approved an Omnibus River and Harbor Bill containing authorizations amounting to approximately $400,000,000. Among the more important projects approved by the committee were deepening and flood control of the Trinity river, Texas; Alabama-Coosa rivers and tributaries in Alabama and Georgia; Savannah river, below Augusta, Georgia, and Clark Hill Reservoir; Illinois Waterway and Indiana harbor canal in Illinois; Umatilla dam in Oregon and Washington. The committee rejected the Tennessee-Tombigbee waterway project. No effort was made to include the Beaver and Mahoning canalization project or the St. Lawrence waterway. The bill is to be submitted for Congressional consideration early in 1944.

The War Department Civil Functions Appropriation Bill, enacted in June, covering the fiscal year ended June 30, 1944, carried an appropriation for $35,700,000 for routine rivers and harbors work.

Air Transport

The House of Representatives in March defeated a resolution providing for the creation of a new standing committee to deal with problems of civil and commercial aviation.

The House on October 19 approved a resolution (H. Res. 307), authorizing its Committee on Interstate and Foreign Commerce to conduct an investigation of matters "related to the present and probable future conditions and developments in and affecting air commerce."

A number of bills designed to revise the whole program of government regulation and promotion of air transport were pending in Congress at the close of the year 1943.

Pipe Lines

New pipe line construction projects were active in 1943, both for oil and gasoline and for natural gas. Extension by Congress of the life of the Cole Pipe Line Act until June 30, 1945, facilitated the development of pipe line undertakings.

Actions by the Office of Defense Transportation affecting the several types of transport are reviewed in the section devoted to the 1943 activities of that organization.

Reorganizations

A total of 85 railroad companies, operating 65,176 miles of railroad, were in the hands of receivers or trustees at the end of 1943. Thirty of the 85 companies were Class I raliways, operating 63,757 miles of railroad.

A net reduction of two took place during 1943 in the total number of companies in receivership or trusteeship. Four roads—two Class I railways and two small companies—were discharged from receivership or trusteeship, while two small companies entered trusteeship.

Two Class I railways emerged from receivership: Ann Arbor Railroad, and Minneapolis & St. Louis Railroad. Receivers were appointed for the Ann Arbor on December 4, 1931, and for the Minneapolis & St. Louis on July 26, 1923. This latter company had thus been in receivership for more than 20 years.

Railroad reorganization in 1943 was characterized by a lull in the filing of new petitions under Section 77; by failure of any major road to emerge from bankruptcy proceedings; by attempts to remodel existing plans to bring them into line with currently changed conditions; and by an increasing amount of litigation.

Despite apparent handicaps, substantial progress was made in advancing reorganization plans already before the Commission or the courts. Little or no disposition was shown in any of the proceedings to attribute any value to outstanding capital stock, although current earnings generally showed marked increases.

A series of decisions by the United States Supreme Court strongly supported the Interstate Commerce Commission in the cases under consideration.

In the case of the Western Pacific, the court reversed the Circuit Court of Appeals and approved the plan of reorganization recommended by the Interstate Commerce Commission. That plan had been submitted to, and accepted by, the creditors.

In the case of the Chicago, Milwaukee, St. Paul & Pacific, the issues before the Supreme Court were similar to those in the Western Pacific case, involving the Commission's valuation methods, the legality of excluding stockholders and credits with secondary priority status, and other matters. The court approved in general the plan of reorganization but directed further consideration of the treatment accorded to certain creditors. The plan was returned to the Commission, which on December 6, 1943, issued its report approving certain adjustments.

The Supreme Court denied petitions for *certiorari* filed with it in proceedings for reorganization of the Chicago & North Western Railroad and the Akron, Canton &

Youngstown Railway. The plans in both cases had previously been submitted to security holders, confirmed by the district courts, and are now ready for consummation.

An examiner's proposed plan of reorganization for the New York, Susquehanna & Western was made public by the Interstate Commerce Commission. An approved plan for the Chicago, Indianapolis & Louisville was issued by the Commission on September 25. Reorganization plans of the Denver & Rio Grande Western and the New York, New Haven & Hartford were further modified by Commission action. The D. & R. G. plan, thus modified, received approval by the District Court on October 25. The New Haven's revised plan was taken under advisement by the District Court on October 7, after argument. Approved plans of the Alabama, Tennessee & Northern, the Fonda, Johnstown & Gloversville, and the Minneapolis, St. Paul & Sault Ste. Marie, were submitted to and accepted by creditors during the year. Subsequently, on June 19, 1943, the plan of the Minneapolis, St. Paul & Sault Ste. Marie received District Court confirmation.

Three plans in trusteeship encountered difficulties in the district courts, and were returned to the Commission for further action. The proceeding involving the Chicago, Rock Island & Pacific had been deferred by the district court pending Supreme Court action in the Milwaukee and Western Pacific cases. The Rock Island plan was returned by the court to the Commission on June 3, for reconsideration of a number of questions, involving reallocation of new securities, appointments of reorganization managers, an advance in the effective date to January 1, 1944, and distribution of cash among creditors.

On July 29, 1943, the district court remanded to the Commission the plan of the Missouri Pacific, which it had previously approved in 1941. The court had in mind the Supreme Court decision in the Milwaukee case, the increased earnings of the Missouri Pacific, and the fact that its plan was rejected by 6 out of 16 classes of creditors and stockholders. The debtor company and various creditor groups filed a revised plan with the Commission on September 28, which provided for participation in the reorganization, through warrants, of certain classes of stockholders. Hearings were held by the Commission in October, and briefs were filed on December 1. The district court, on October 19, returned the Florida East Coast plan to the Commission for further consideration, on the ground that because of changed conditions and the large accumulation of unallocated cash, the plan did not afford due recognition of the rights of security holders.

Efforts to Salvage Equity Holdings

Determined efforts were made by various companies now under reorganization to improve the position of equity and other interests which have suffered severely under the "wringer" program embodied in plans thus far approved. The improved earning position of debtor companies has been the basis of such efforts. However, indications are that surplus earnings will be used to satisfy creditor claims and to improve the general financial position of the new companies, rather than to salvage equity holdings.

In receivership proceedings, a plan of reorganization for the Rutland Railroad was approved by the district court on September 8. A modified plan for the Minneapolis & St. Louis was likewise given court approval during the year. A special master appointed to expedite the reorganization of the Seaboard Air Line filed his final report on July 20. On November 5, the court appointed a three-man arbitration committee to consider conflicts in the Seaboard proceeding.

Several voluntary debt-adjustment plans progressed during 1943 under the terms of the McLaughlin Act, effective October 16, 1942. This legislation was substantially a re-enactment of the earlier Chandler Act, which had expired. A final court decree was entered March 8 in the case of the Colorado & Southern. On March 25, the Interstate Commerce Commission approved the debt-adjustment plans of the Midland Valley and the Delaware & Hudson, and the latter plan subsequently received court sanction.

Railway Financing

The railroads continued in 1943 to finance their additions and betterments largely on a cash basis. In addition, they continued to effect reductions in their funded debt, although exact statistics on this point are not yet available for the year as a whole.

The Railroad Credit Corporation in 1943 made liquidating payments aggregating 3 per cent to participants in its pool. The Corporation has made 57 distributions to participants, amounting to 90 per cent of the original loan fund, and aggregating a total of $66,096,963. Included in the 10 per cent not yet liquidated are a few bad debts, some of which were written off during 1943, and some of which may yet be written off. However, the Corporation still carries enough potential assets on its balance sheet to assure participants a final liquidation close to 100 per cent.

During the first 11 months of 1943, rail carriers borrowed $13,672,000 from the Reconstruction Finance Corporation and paid off loans amounting to $75,809,842. There was thus a net reduction of more than $62,000,000 in the amount owed the government in this field of financing, and the net balance due the government on November 30 was reduced to $406,035,919.

In the sale of railroad securities to the public the Reconstruction Finance Corporation has realized a net profit of more than $8,300,000.

Rates and Fares

The Interstate Commerce Commission, by a vote of 6-to-5, ordered the railroads on April 6, 1943, to suspend certain of the freight rate increases which became effective on March 18, 1942. The Commission made the suspension effective for the period May 15, 1943, to December 31, 1943. These increases, averaging about 4.7 per cent on all freight traffic, had been authorized in 1942 as a partial offset to continuing increases in operating costs, principally wages.

Later, on October 7, the Commission issued a "show cause" order as to why the suspension of the freight rate increases should not be continued for a further period of six months. The railroads, responding to the order, indicated their consent to a 6-month extension of the suspension, "because of peculiar uncertainties now facing them [the railroads] with respect both to their costs of operation and their volume of traffic in the immediate future." The Interstate Commerce Commission accordingly ordered a further suspension of the increases to June 30, 1944.

These freight rate changes in 1942 and 1943 did not greatly affect the average revenue per ton-mile, which remained at about the same levels from 1941 to 1943. Continued movement of heavy commodities moving over longer distances, together with the large proportion of

government traffic moving at lower-than-commercial rates, largely accounted for this situation.

Average revenue per passenger-mile in 1943 was slightly less than in 1942. The average for both years reflected the increased fares authorized by the Commission as of February 10, 1942, increases that were not modified in 1943. Heavy troop movements in 1943, a greater volume of furlough travel at special rates, and the greater rate of increase in coach than in Pullman travel contributed to decreased average revenue in 1943.

Table XIII shows the average revenue per ton-mile and per passenger-mile for the years 1923 and 1933, for each year from 1939 to 1942, and for the first nine months of 1943.

Table XIII—Revenue per Traffic Unit

Year	Per ton-mile (cents)	Per passenger-mile (cents)
1943 (9 mos.)	0.933	1.885
1942	0.932	1.916
1941	0.935	1.753
1940	0.945	1.754
1939	0.973	1.839
1933	0.999	2.013
1923	1.116	3.018

Average revenue per ton-mile dropped below one cent in 1933 for the first time since 1919, and has remained below that figure throughout the subsequent decade. The average was slightly less in 1941 than in 1940, and showed another slight decrease in 1942 and 1943. The ton-mile averages for 1942 and 1943 were lower than in any of the preceding 23 years.

Average revenue per passenger-mile in 1934 fell below 2 cents for the first time since 1915. After declining in 1940 and 1941 to the lowest levels in railroad history, the average showed an increase of about 10 per cent in 1942, with a slight recession in 1943.

Financial Results

The following four tables, XIV to XVII, compare the income and outgo of the railroads, and the net operating results, for 1943 and 1942. All entries for 1943 relate to the 12 months ended October 31, 1943, while the entries for 1942 are those of the calendar year.

Because of difficulty in estimating the gross revenue aggregate for November and December, 1943, as well as the respective charges to operating expenses and taxes necessary to take care of wage increases that have been made or shortly will be authorized on a retroactive basis, no final income estimates are here made for the calendar year 1943. However, the net earnings of the railways for the calendar year will almost certainly be less than for the 12 months ended October 31. It seems likely, in fact, that they will be below the corresponding net earnings of the calendar year 1942. This will be true of both the net railway operating income and the net income after charges.

Table XIV is a condensed income account, comparing the returns for the calendar year 1942 with those of the 12 months ended October 31, 1943.

Table XIV—Condensed Income Account

	1943 (millions)	1942 (millions)
Total operating revenues	$8,904	$7,466
Total operating expenses	5,394	4,601
Operating ratio—per cent	60.6	61.6
Tax accruals	1,805	1,199
Net railway operating income	1,512	1,485
Net income (after fixed and contingent charges)	967	902

Operating Revenues

Table XV consists of a comparison of total operating revenues, broken down into receipts from freight, passenger, and other services, for the 12 months ended October 31, 1943, with the calendar year 1942.

Table XV—Operating Revenues

	1943 (millions)	1942 (millions)
Freight revenue	$6,711	$5,944
Passenger revenue	1,587	1,028
Mail revenue	123	112
Express revenue	126	97
All other	357	285
	$8,904	$7,466

Total operating revenues for 1943 approximated 9 billion dollars, the greatest gross in railway history. The next greatest revenue aggregate was for 1942, when the total approached 7½ billion dollars.

Not only were total operating revenues in 1943 greater than in 1942 and in all prior years, but freight, passenger, and mail revenues were also, in 1943, respectively the greatest in history.

Operating Expenses

Table XVI compares total operating expenses according to the several principal groups, 12 months ended October 31, 1943, with the calendar year 1942.

Table XVI—Operating Expenses

	1943 (millions)	1942 (millions)
Maintenance of way and structures	$1,021	$796
Maintenance of equipment	1,374	1,211
Traffic	126	118
Transportation	2,594	2,242
General and other	279	234
Total	$5,394	$4,601

Total operating expenses in 1943 were greater than in any prior year, except for the year 1920. Each of the several classes of operating expenses increased in 1943 over 1942, and the total showed a considerable increase. These increases resulted from more traffic handled, higher wage rates, and increased material prices.

Maintenance Work Postponed

Although both groups of maintenance expenses increased, a certain amount of programmed work was necessarily postponed in 1943 on account of labor and material shortages. In other words, more maintenance work would have been carried out had conditions permitted, and the work thus postponed will become a charge against the revenues of some future year, or years.

It is anticipated that operating expenses for the calendar year 1943 will show an appreciable increase over those reported for the 12 months ended October 31, 1943.

Taxes

Tax accruals increased from $1,199,000,000 in the calendar year 1942 to $1,805,000,000 in the 12 months ended October 31, 1943, an increase of more than 50 per cent. When returns for the calendar year 1943 become available, an even greater tax total is expected.

The first years in which railroad taxes even approached one billion dollars was in 1942. Taxes in 1941 amounted to $547,000,000, and in 1939 were $356,000,000.

Between 1939 and 1943, Federal income taxes increased from $33,000,000 to $1,300,000,000; payroll taxes, from $106,000,000 to $202,000,000; all other taxes from $217,000,000 to $304,000,000. While ton-miles slightly more than doubled during that same four-year period,

and passenger-miles increased nearly three times, the railroad income tax rose nearly 40 times.

Net Railway Operating Income and Net Income

Table XVII shows the net railway operating income, the rate of return on property investment, and the net income after fixed and contingent charges. The entries for 1943 are for the 12 months ended October 31.

Table XVII—Net Railway Operating Income and Net Income

Year	Net Railway Operating Income: Amount (thousands)	Net Railway Operating Income: Rate of Return (per cent)	Net Income (thousands)
1943	$1,511,849	5.60	$966,500
1942	1,484,519	5.50	901,713
1929	1,251,698	4.81	896,807

For the first time since 1929, the rate of return exceeded 4 per cent in 1942 and 1943. The corresponding rate over the period from 1930 to 1941 ranged from a low of 1.24 per cent in 1932 to a high of 3.75 per cent in 1941.

As already indicated, it is anticipated that the net earnings and rate of return for the calendar year 1943 will fall below the corresponding totals of the 12 months to October 31. It is believed, in fact, that not only will

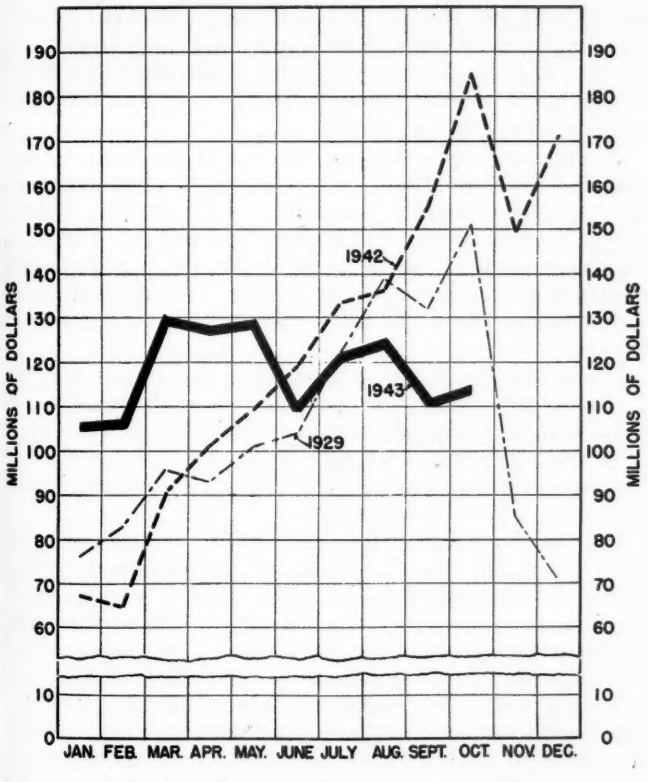


Chart C—Monthly Trend in Net Railway Operating Income, 1939, 1942 and 1943

the final net income total for 1943 be less than in 1942, but that it is likely to fall below even that of the year 1929.

Chart C shows the monthly trend in net railway operating income during 1929, 1942 and 1943. It shows a quite different pattern in 1943, compared with 1942 or 1929. Net railway operating income for the first five months of 1943 exceeded the corresponding months of 1942, but in each month subsequent to May, 1943, there was a actual decrease. For each of the four months of July to October, 1943, net railway operating income was less than in the corresponding months of 1929.

Operating Efficiency and Economy

General operating efficiency of the railroads has never been greater than during the present war period. Several of the more significant efficiency factors are outlined in successive tables, many of the factors having reached record-breaking levels.

Table XVIII shows the average number of gross and net ton-miles per freight train-hour. The gross figures include, while the net figures exclude, the tare weight of the freight cars in the train. Continuous increase has taken place in the average number of both gross and net ton-miles per train-hour. Both factors attained record levels again in 1943.

Table XVIII—Ton-Miles per Train Hour

Year	Gross Ton-miles	Net Ton-miles
1943 (10 mos.)	36,079	17,022
1942	35,510	16,135
1941	34,684	14,930
1940	33,811	14,028
1939	32,808	13,450
1933	27,344	10,974
1923	16,764	7,770

Table XIX shows the average daily performance, in miles run, of active locomotives and freight cars. Active locomotives are serviceable units, less those reported as stored. Active freight cars are serviceable units, less those classified as surplus. These factors, too, showed record-breaking results in 1943.

Table XIX—Locomotive and Car Performance

Year	Miles per day per active unit: Freight Locomotives	Passenger Locomotives	Freight Cars
1943 (10 mos.)	125.0	220.3	52.3
1942	122.4	206.8	50.3
1941	116.4	195.6	45.7
1940	107.5	190.8	42.8
1939	104.0	184.2	41.3
1933	89.8	160.9	34.6
1923	81.6	142.4	31.2

The next table, Table XX, shows the average speed of freight and locomotive-propelled passenger trains, in miles per hour. These averages are not measurements of the running speed of trains while in motion, but take into account the total elapsed time between terminals.

Table XX—Average Train Speed (MPH)

Year	Freight	Passenger
1943 (10 mos.)	15.5	35.8
1942	15.8	36.9
1941	16.5	37.6
1940	16.7	37.3
1939	16.7	36.9
1933	15.7	*a*
1923	10.9	*a*

a Not reported

The heavy freight and passenger traffic load in 1942, and the even greater traffic load in 1943, together with the heavier traffic density that resulted, have led to slight decreases since 1941 in the average speed of trains.

Table XXI shows the increase in freight train and car load, 1943 surpassing all records, particularly in respect of the average trainload.

Table XXI—Average Freight Train and Car Load (Net Tons)

Year	Per train	Per car
1943 (10 mos.)	1,116	33.5
1942	1,035	31.8
1941	915	28.5
1940	849	27.6
1939	813	26.9
1933	699	25.6
1923	713	27.9

In only one year prior to 1939 had the average freight trainload exceeded 800 tons. This was the year 1929,

when the average was 804 tons per train. Corresponding averages for 1939 and 1940 were 813 tons and 849 tons, respectively. The average was 1,116 tons during the first 10 months of 1943, or more than 30 per cent above either 1939 or 1940, and nearly 40 per cent above 1929.

Passenger trainload averaged 57.6 and 60.3 passengers in 1939 and 1940, and 186.2 passengers during the first nine months of 1943, more than three times as great as the 1939 or 1940 average.

Table XXII relates to locomotive fuel performance and shows that, although the locomotive fuel consumption in 1943 was not at record levels, the performance was of a high order, both in freight and in passenger service.

Table XXII—Locomotive Fuel Performance

Year	Gross ton-miles per ton of fuel (freight service)	Passenger train car-miles per ton of fuel (passenger service)
1943 (10 mos.)	17,811	134
1942	18.072	133
1941	18,085	133
1940	17,839	133
1939	17,774	135
1933	16,479	131
1923	12,452	111

Much improvement in railroad operating efficiency has been accomplished during the war period, or since 1939. To emphasize this fact, the following table (XXIII) shows the percentage increases from 1939 to 1943 in certain of the efficiency factors already discussed.

Table XXIII—Percentage Increase, 1939 to 1943

Gross ton-miles per train-hour	10.0
Net ton-miles per train-hour	26.6
Miles per day per active unit:	
Freight locomotives	20.2
Passenger locomotives	19.7
Freight cars	26.6
Average load per—	
Freight train	37.3
Passenger train	223.3
Freight car	24.5
Passenger car	131.9

These are impressive statistics of progress, especially in respect of the greater increase in net than in gross freight train performance, and in respect of the freight train load.

Railroads have received valuable aid during this war period from Shippers Advisory Boards. The freight car spends much of its time in the hands of the shippers, being loaded and unloaded. Shippers can therefore assist transportation efficiency by loading and unloading promptly, by loading more heavily, by attention to packing, cleaning cars, etc., and in many other ways.

These boards have originated a large number of local Car Efficiency Committees, covering more than 700 important shipping centers. Through these committees, and through effective individual cooperation, shippers see to it that cars are kept moving and are used for the purpose for which they were intended—transportation and not storage.

Performance of the railroads in the war emergency would have been much more difficult without the willingly extended and highly efficient cooperation of shippers and their advisory boards.

Conclusion

After another year of solid accomplishment, what can the railroads anticipate for the immediate future, and what for the longer pull?

Looking forward into 1944, the prospects are for further moderate increases in traffic demand, although war production will probably not be greatly intensified, compared with that of the latter part of 1943. Some lines of production have already tapered off, and that process will continue in 1944. Other lines will, of course, be further increased. Because of pipe line construction and the prospect of some resumption of service by water, the demand on rail carriers for oil transport to the east has already been reduced from a peak movement of more than one million barrels a day to about 750,000 barrels. The tank cars this reduction has released can, however, be utilized in other areas. Trucks, buses, and private automobiles will find continued difficulty in coping with tire, gasoline and parts shortages, and the railroads will undoubtedly carry the bulk of that load for another year.

Taking these and other factors into consideration, it seems safe to anticipate increases in 1944 of from two to five per cent in the ton-mile demand on the railroads, and of from 10 to 20 per cent in the passenger-mile demand. These somewhat speculative prospects are subject to change from time to time, in line with war developments.

Whatever the traffic levels prove to be in 1944, the prospects are that gross revenues will be little, if any, greater in 1944 than in 1943, and that the net earnings will definitely show a decrease under the corresponding totals of 1942 and 1943.

Can the carriers meet even the moderate increase in the demand for their services, indicated for 1944? The answer is *yes,* provided the manpower situation shows some easing, the equipment and material situation improves, and the shippers come through on their pledge to intensify their utilization of railroad equipment and service; also, provided the wage imbroglio is finally cleared up and relegated to a less critical position than it occupied at the end of 1943.

Manpower stands out as the major problem to be grappled with in 1944. As a railroad representative aptly told a senatorial committee in November, shortage of men is more critical than a shortage of equipment or materials. Without crews, trains cannot run or switching be conducted in the yards. Without adequate maintenance forces, the plant cannot be kept in proper repair.

It is to be hoped that a more complete recognition of the manpower needs of the railroads will develop in 1944, both as to induction calls of Selective Service and as to the allocation of manpower in critical areas under priority programs now being established in many such areas throughout the country.

For the longer look into the future, the railroad industry has set up a committee, the Railroad Committee for the Study of Transportation, which since the summer of 1942 has been studying the immediate and future prospects of railroad traffic. This committee, working through a number of subcommittees and in cooperation with other industries and industrial organizations, will issue a number of reports in 1944, which should be of assistance to the several managements in developing their respective policies for the future. A number of the larger companies have also established special groups or staffs, whose studies are directed to the prospects of the postwar period. Thus the problems of the more distant future are not being overlooked, even in the midst of the many complex and troublesome problems of the present and immediately succeeding months —perhaps years—of the war period.

Whatever the length of the war, and on whatever dates fighting in Europe, in Asia, and in the Pacific area may come to an end, the record of the American railways since Pearl Harbor supplies assurance to the nation that transportation needs for the remainder of the war will be adequately and satisfactorily met.

$1,716,652,000 of Railway Buying

1943 expenditures for materials, supplies and fuel are greater than in any year since 1929

By C. Miles Burpee
Purchasing and Stores Department Editor

Railway Material Requirements Loom Large for 1944

RAILWAY purchases in the United States last year approximately $1,716,652,000, as nearly as can be determined from the information available at this time. This is about $81,252,000 or 5 per cent greater than the corresponding total for 1942. The 1943 total includes approximately $1,406,652,000 of materials, fuel and supplies received by Class I railroads; approximately $44,000,000 of fuel and materials for short lines, switching and terminal companies not supplied by other roads; $18,000,000 of materials and supplies purchased by private car lines for operating and maintaining their facilities, and $248,000,000 of new locomotives and cars built for the carriers by commercial builders.

The $1,406,652,000 spent in 1943 for materials and supplies, including fuel, was nearly 6 per cent more than in the previous record year of 1929 and larger than in any year since that time; it was 83 per cent more than in 1939, 65 per cent more than in 1940, 21 per cent more than in 1941, and 12 per cent greater than in 1942. Excluding fuel, the railways bought $888,703,000 of materials and supplies, about 10 per cent less than in 1929 but more than in any year since; 73 per cent more than in 1939, 51 per cent more than in 1940, 9 per cent more than in 1941 and 7 per cent more than in 1942.

The interpretation of these purchase figures, insofar as actual deliveries of materials and supplies are concerned, must be tempered with due consideration of prices, substitutions for critical materials and the revision of standard specifications or the temporary adoption of different specifications necessitated by the requirements of the nation's military forces. Although the governmental regulation of prices has had a marked stabilizing influence on iron and steel products, the prices of many material items, particularly those of lumber, timber and cross and switch ties, have shown substantial increases over 1942, as well as during the entire period following the outbreak of war in 1939.

Railway purchases of coal and petroleum fuel products reached a new peak last year when the Class I roads spent $517,949,000 for fuel products. This amount topped 1929 purchases of these supplies by nearly 54 per cent; it was more than double the corresponding expenditures for 1939; it exceeded 1940 figures by 89 per cent, and those of 1941 by 48 per cent and was 22 per cent greater than the amount spent in 1942.

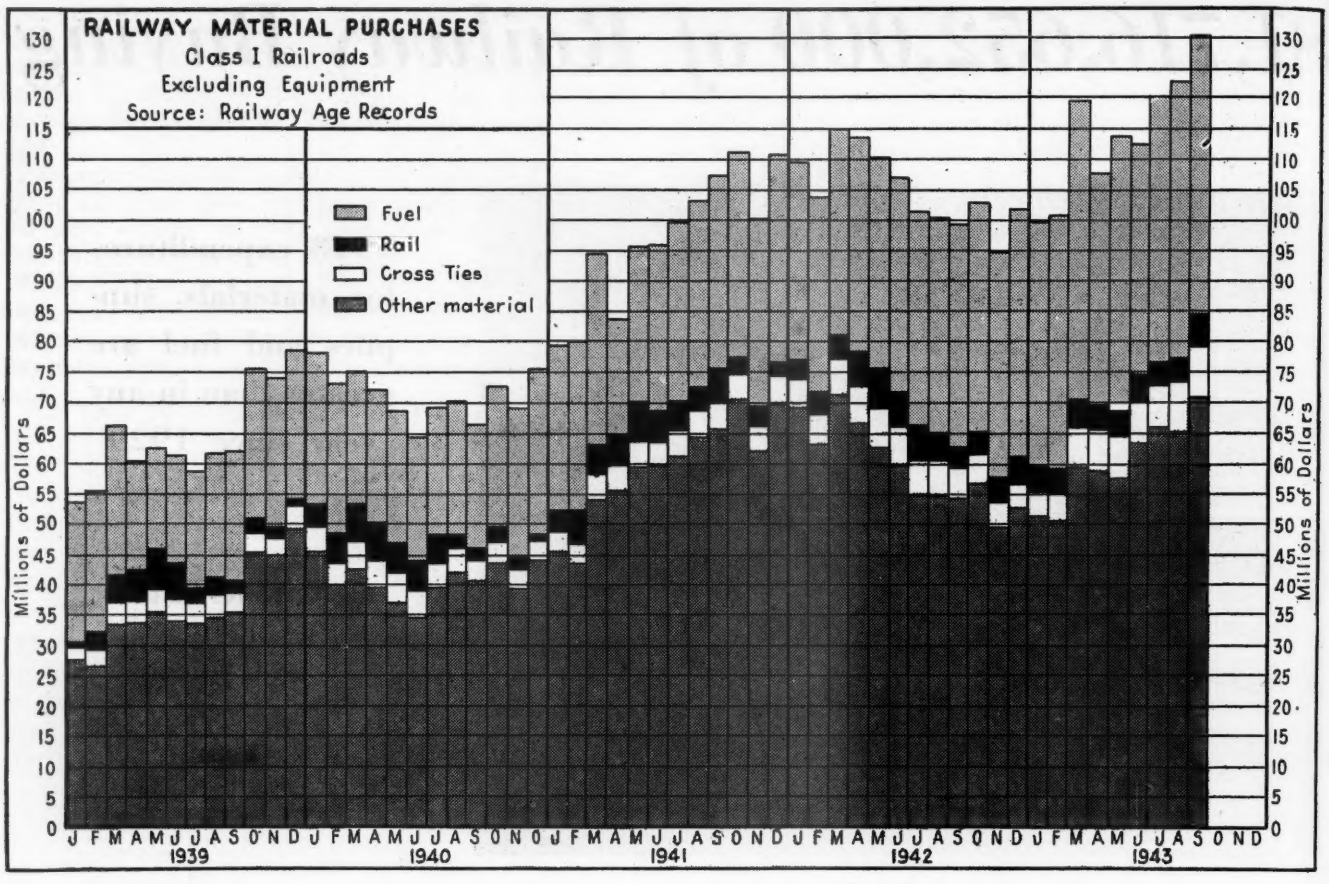
Annual Purchases of Materials and Supplies Class I Railroads

(Equipment Excluded)

	Fuel (000)	Rail (000)	Cross Ties (000)	Other Material (000)	Total (000)	Total Less Fuel (000)
1929	$336,805	$88,735	$143,874	$759,186	$1,328,600	$991,795
1930	308,277	60,980	127,652	538,591	1,035,500	727,223
1931	244,500	41,500	44,000	365,000	695,000	450,500
1932	178,250	15,500	27,550	223,700	445,000	266,750
1933	179,150	10,650	19,750	248,200	457,750	278,600
1934	220,000	33,200	39,700	332,100	625,000	405,000
1935	232,400	20,354	33,780	306,593	593,127	360,727
1936	271,398	37,237	41,360	452,309	802,304	530,906
1937	293,540	44,935	58,361	562,100	958,936	665,396
1938	243,889	23,920	37,911	277,091	582,811	338,922
1939	257,880	38,340	39,760	434,394	770,374	512,494
1940	273,677	45,418	47,995	488,883	855,973	582,296
1941	349,848	52,311	50,039	710,831	1,163,029	813,181
1942	425,712	55,703	63,459	715,526	1,260,400	834,668
1943*	517,949	55,680	81,733	694,290	1,406,652	888,703

*Preliminary Estimates.

Incidentally, Interstate Commerce Commission reports show that the average cost of coal (at the mines) consumed by locomotives of Class I roads during the first 9 months of 1943 was the highest in any year since the in-


RAILWAY MATERIAL PURCHASES
Class I Railroads
Excluding Equipment
Source: Railway Age Records
Fuel
Rail
Cross Ties
Other material
Millions of Dollars
Millions of Dollars
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1939
1940
1941
1942
1943

Monthly Purchases of Materials and Supplies 1940-1943 Class I Railroads

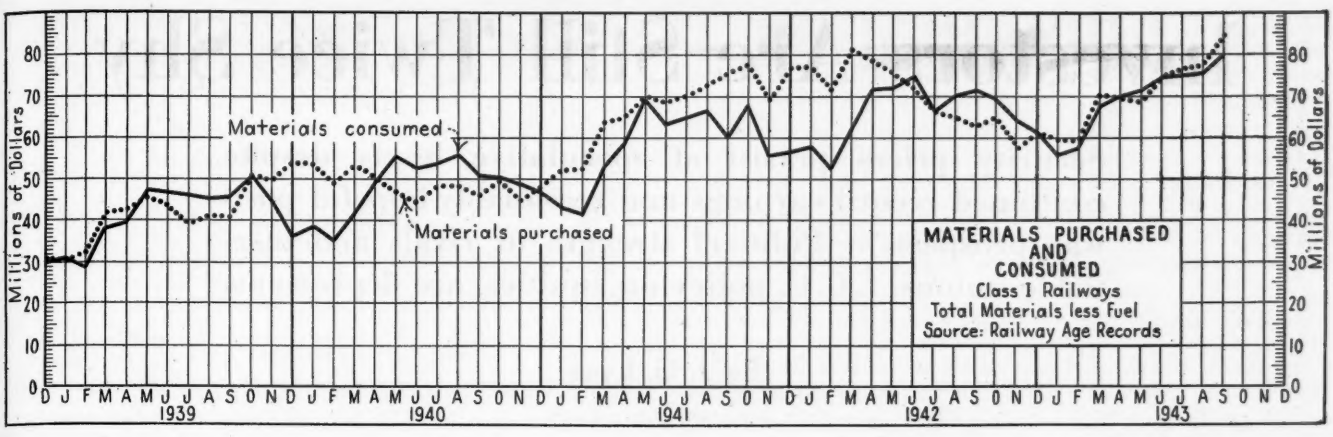
	Fuel—In Thousands				Rail—In Thousands				Cross Ties—In Thousands			
	1940	1941	1942	1943*	1940	1941	1942	1943*	1940	1941	1942	1943*
Jan.	$24,977	$27,261	$32,803	$39,882	$3,529	$3,464	$3,075	$4,471	$4,128	$3,472	$4,895	$4,118
February	24,219	27,901	31,945	41,541	4,815	5,297	3,817	4,033	3,928	3,514	4,837	4,622
Mar.	21,880	31,121	33,976	49,296	6,042	5,168	3,770	4,385	4,635	4,087	6,130	6,612
Apr.	21,575	19,203	35,179	48,368	6,470	4,857	5,831	3,886	4,585	4,365	6,173	6,758
May	21,852	25,550	34,651	44,990	5,019	6,196	6,641	4,274	4,789	4,369	6,186	6,894
Jun.	20,160	27,338	35,239	38,018	5,022	4,868	5,833	4,260	4,645	4,071	6,168	6,964
Jul.	20,875	29,700	35,101	43,608	4,570	4,697	5,573	4,066	4,293	4,192	5,710	7,749
Aug.	22,128	30,535	35,417	45,297	2,325	3,879	4,624	4,032	3,898	4,345	5,637	8,341
Sep.	21,575	31,605	36,265	45,754	1,855	5,511	3,626	5,146	3,382	4,396	5,152	8,628
Oct.	23,104	34,343	37,729	42,445	2,574	2,964	3,771	5,572	3,487	4,398	4,647	8,902
Nov.	24,145	31,062	37,067	38,100	2,094	3,189	4,265	5,590	3,116	4,116	4,093	5,875
Dec.	27,187	34,229	40,340	40,650	1,100	2,219	4,877	5,965	3,110	4,715	3,831	6,270
	$273,677	$349,848	$425,712	$517,949	$45,415	$52,309	$55,703	$55,680	$47,996	$50,040	$63,459	$81,733

	Other Material—In Thousands				Total—In Thousands				Total Less Fuel—In Thousands			
	1940	1941	1942	1943*	1940	1941	1942	1943*	1940	1941	1942	1943
Jan.	$45,593	$45,457	$69,060	$51,147	$78,227	$79,654	$109,833	$99,618	$53,250	$52,393	$77,030	$59,736
Feb.	39,939	43,467	63,216	50,531	72,901	80,179	103,815	100,727	48,682	52,278	71,870	59,186
Mar.	42,655	54,070	71,172	59,381	75,212	94,446	115,048	119,674	53,332	63,325	81,072	70,378
Apr.	39,407	55,444	66,479	58,806	72,037	83,869	113,662	117,818	50,462	64,666	78,483	69,450
May	37,122	59,492	62,880	57,513	68,782	95,607	110,358	113,671	46,930	70,057	75,707	68,681
Jun.	34,510	59,682	59,889	63,240	64,337	95,959	107,129	112,482	44,177	68,621	71,890	74,464
Jul.	39,447	61,117	54,940	65,182	69,185	99,706	101,324	120,605	48,310	70,006	66,223	76,997
Aug.	42,016	64,372	54,932	65,226	70,367	103,131	100,610	122,896	48,239	72,596	65,193	77,599
Sep.	40,777	65,715	54,156	71,018	67,589	107,227	99,199	130,546	46,014	75,622	62,934	84,792
Oct.	43,630	70,250	56,759	67,396	72,795	111,955	102,906	124,315	49,691	77,612	65,177	81,870
Nov.	39,620	62,057	49,464	68,600	68,975	100,424	94,889	118,165	44,830	69,362	57,822	80,065
Dec.	44,169	69,709	52,579	73,250	75,566	110,872	101,627	126,135	48,379	76,643	61,287	85,485
	$488,885	$710,832	$715,526	$694,290	$855,973	$1,163,029	$1,260,400	$1,406,652	$582,296	$813,181	$834,688	$888,703

* Subject to revision.

ception of the record in 1927. It was 26 per cent higher than in 1939, 28 per cent more than in 1940, 19 per cent more than in 1941 and 13 per cent more than in 1942. The average price of fuel oil showed corresponding increases of 29 per cent over 1939 and 1940, 21 per cent over 1941 and 13 per cent over 1942; gasoline increased 5 per cent over 1942 and during the first three quarters of 1943 attained its highest price since 1929. Average costs of Diesel fuel oil during the first nine months of last year reflected increases of 17 per cent over 1939, 15 per cent over 1940, 14 per cent over 1941 and 4 per cent over 1942.

Expenditures for rail amounted to $55,680,000, or about the same as for 1942. Notwithstanding the tremendous increase in railway traffic since August, 1939, last year's expenditures for rail were approximately 36 per cent *less* than in 1929, and about 9 per cent *less* than in 1930, although they exceeded those for any intermediate year, with the exception of 1942. They were 45 per cent greater than in 1939, nearly 23 per cent greater than in 1940 and 8 per cent more than in 1941. The price for rail, without extras, has remained unchanged since 1937, and, according to the records of average costs maintained by *Railway Age*, is approximately 7 per cent less than in 1929. The average weight per yard is another important factor in any consideration of rail requirements,



for the average weight of rail in track throughout the United States increased from 82.89 lb. per yard in 1921 to 95.30 lb. per yard at the beginning of 1941, at which time approximately 106,121 miles of main line tracks were laid with rail weighing 100 lb. or more per yard.

More money was spent for cross ties in 1943 than in any year since 1930. Expenditures by Class I roads for cross ties last year amounted to $81,733,000, which was 105 per cent more than in 1942, 70 per cent over 1940, 63 per cent over 1941 and 29 per cent over 1939. Despite this large expenditure in 1943, the total was only 57 per cent of the 1929 outlay and was approximately 64 per cent of the amount spent for this item in 1930. Moreover, the average cost of cross ties in 1943 was 9 per cent higher than in 1942, 90 per cent over 1939 and 58 per cent more than in 1929.

The 1943 expenditures for other materials (excluding fuel, rail and cross ties) totaled $694,290,000, or about 3 per cent less than the 1942 figure of $715,526,000, about 2 per cent less than in 1941, 42 per cent *more* than in 1940 and 60 per cent *more* than in 1939. The aggregate expenditure for these miscellaneous materials purchased last year was only 9 per cent less than in 1929, and it was greater than in any succeeding year up to 1941. By reason of the incomplete nature of the data now available regarding orders placed for freight cars and locomotives during the year, as well as the lack of information regarding the status of equipment orders placed in 1941, 1942 and 1943, and subsequent allocation procedure, the customary figures for new equipment ordered in 1943 have been omitted. However, the railways installed about $248,000,000 of locomotives and freight cars that were built by commercial manufacturing concerns in 1943, and in addition approximately $21,000,000 of equipment built in railway shops (the materials for which are included in the figures for railway materials purchased), or a total of $269,000,000 for new equipment in 1943. This compares with $325,000,000 in 1942 and $393,000,000 in 1941.

The beginning of 1943 marked the reversal of a trend in railway buying. Although railway traffic had increased progressively throughout all of 1942, the consumption of material (excepting fuel) exceeded material purchases (excepting fuel) during every month in the last half of the year, with the result that the consumption of materials and supplies during the last half of 1942, exceeded purchases made during this period by $25,650,000. This drain on railway inventories was halted and the trend reversed in January, 1943. This relationship was maintained throughout the first nine months, with the exception of April and May, and at the end of September, purchases for the nine-months period exceeded consumption by $13,038,000.

The total inventories of Class I railroads on October 1, 1943, aggregated $529,546,000 and included about $61,963,000 of fuel, $19,099,000 of new and second hand rail, $60,224,000 of cross ties and $380,169,000 of other materials. This compares with $522,560,000 on October 1, 1942; $377,219,000 on January 1, 1943 and $375,384,000 on July 1.

Materials and Supplies in Stock
Class I Railroads

	Fuel (000)	Rail-New and S. H. (000)	Cross Ties (000)	Stores Stock (000)	Scrap (000)	Total (000)
Year 1941						
Jan. 1	$24,780	$26,026	$57,894	$214,601	$11,371	$334,672
Feb. 1	24,591	26,600	60,311	220,887	10,728	343,117
Mar. 1	27,105	28,217	62,455	228,012	10,859	356,648
Apr. 1	30,984	28,573	65,356	235,404	11,102	371,419
May 1	23,486	25,649	58,349	251,691	9,632	368,807
June 1	24,578	26,461	57,051	252,972	10,357	371,419
July 1	25,991	24,389	51,551	266,019	9,669	377,619
Aug. 1	29,299	25,156	55,976	265,886	10,264	386,581
Sept. 1	32,632	24,500	51,745	276,661	10,380	395,918
Oct. 1	34,035	25,755	44,327	298,149	9,704	411,970
Nov. 1	37,455	24,009	44,452	309,295	9,377	424,588
Dec. 1	37,668	23,979	46,632	320,572	8,181	437,032
Year 1942						
Jan. 1	40,040	23,986	48,426	338,839	8,808	460,099
Feb. 1	40,427	22,705	60,944	346,458	10,941	481,475
Mar. 1	40,198	23,886	64,290	360,946	10,489	499,809
Apr. 1	41,372	23,635	66,837	377,799	9,947	519,590
May 1	43,820	22,924	65,552	386,376	10,168	528,840
June 1	44,574	23,562	62,424	392,441	10,689	533,690
July 1	48,408	22,941	58,835	393,419	10,816	534,419
Aug. 1	50,580	21,847	58,520	394,600	9,366	534,913
Sept. 1	50,434	21,622	55,800	392,513	9,609	529,978
Oct. 1	51,624	20,484	54,562	386,346	9,544	522,560
Nov. 1	50,066	16,772	49,183	390,974	8,744	515,739
Dec. 1	49,035	17,909	50,990	381,502	9,340	508,776
Year 1943*						
Jan. 1	47,612	18,131	52,977	375,376	9,805	503,901
Feb. 1	43,654	19,583	56,587	374,097	10,408	504,329
Mar. 1	45,374	20,651	58,999	371,835	10,385	507,244
Apr. 1	50,330	20,753	62,280	371,332	10,517	515,212
May 1	55,627	19,206	61,016	373,565	10,105	519,519
June 1	58,172	19,424	60,479	370,995	10,167	519,237
July 1	55,595	20,811	56,863	373,205	10,267	516,741
Aug. 1	58,216	19,035	57,536	376,295	9,258	520,340
Sept. 1	61,335	19,262	59,243	376,250	8,645	524,735
Oct. 1	61,963	19,099	60,224	380,169	8,091	529,546

*Subject to revision.

The railways' bituminous coal stocks continued to dwindle in October under the impact of a six-per-cent increase in consumption over September. Stocks held by Class I roads on November 1 stood at 12,559,000 tons, a 35-days average supply compared with 13,511,000 tons, or 39 days average supply, on October 1.

Stocks of bituminous coal held by Class I railroads in different regions were reported as follows by the U. S. Department of the Interior:

Region	Stocks on Hand (Tons) Nov. 1, 1943	Oct. 1, 1943	Per Cent of Change	Average Days Supply Nov. 1, 1943	Oct. 1, 1943
Eastern	2,611,712	2,930,936	−10.9	31	36
Allegheny	2,509,414	2,645,818	− 5.2	30	32
Pocahontas	514,303	619,476	−17.0	28	35
Southern	2,418,021	2,780,652	−13.0	39	46
Northwestern	2,190,049	2,099,925	+ 4.3	49	49
Central Western	1,935,561	2,016,808	− 4.0	38	41
Southwestern	380,213	416,907	− 8.8	26	29
Total	12,559,273	13,510,522	− 7.0	35	39

Investors Are Still Twice Shy

Security prices persist at speculative levels despite continued record earnings and reasonably hopeful post-war prospects — Political strength of rivals and insatiable unions, I. C. C. policy on equities, are depressants

By J. G. Lyne

Assistant to Editor

ANOTHER year with favorable railway earnings has gone by—without there having been any genuine revival in confidence by the investment market in future prospects of the railroad industry. There was, to be sure, some betterment in the average selling prices of both railway stocks and bonds—but both types of security, except in a few isolated individual instances, and prime mortgages, still remain, in the judgment of the market, in the category of speculative risks, rather than sound investments.

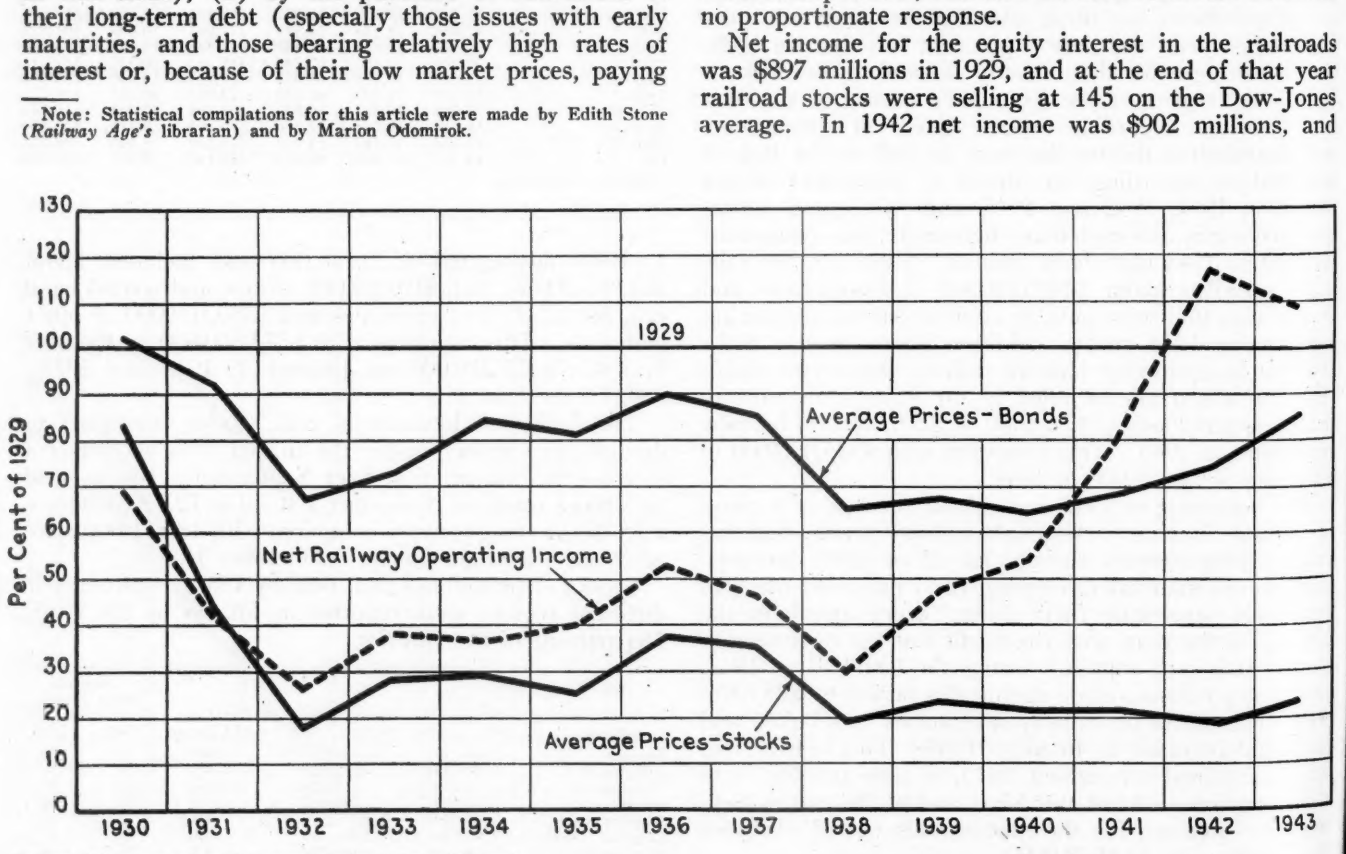
Underlying Strength Greatly Augmented

In the meantime, however—although market prices reflect but meager recognition of the fact—the carriers proceeded to strengthen their underlying financial position (1) by accumulation of cash reserves (as is set forth in greater detail in an article appearing earlier in this issue), (2) by the purchase or retirement of their long-term debt (especially those issues with early maturities, and those bearing relatively high rates of interest or, because of their low market prices, paying the highest yields to the purchaser) and (3) by making capital improvements from current funds.

Exact figures of debt retirement during 1943 are not yet available, but one well-informed investment authority estimates that it may have exceeded $500 millions. In the years 1941-42, the railroads effected a net reduction of $470 millions in their outstanding debt. As Dr. J. H. Parmelee of the Association of American Railroads testified before a Senate sub-committee recently, in the two years 1941-42, the railroads expended $1,029 millions on additions and betterments and $740 millions for payments on debt—a total of $1,769 millions—of which $416 millions were financed by the sale of securities, while the remaining $1,353 millions came from current funds. It is evident, therefore, that the roads are rapidly improving their underlying financial position—as well by additions to their uncapitalized surplus, as by reduction in their indebtedness and in maximizing their cash position; and still the stock market has made no proportionate response.

Net income for the equity interest in the railroads was $897 millions in 1929, and at the end of that year railroad stocks were selling at 145 on the Dow-Jones average. In 1942 net income was $902 millions, and

Note: Statistical compilations for this article were made by Edith Stone (*Railway Age's* librarian) and by Marion Odomirok.



Railway Age average prices of 20 representative stocks and 20 bonds.

Security Prices Remained in the Speculative Range—a Long Way from Investment Status

New Issues of Railroad Securities Offered for Sale in the United States† 1934-1943

(Amounts in thousands of dollars)

Year	Bonds	Stock	Railroad total	Total all industries	Railroad as per cent of total
1934	$176,423	....	$176,423	$397,240	44.4
1935	126,031	....	126,031	2,331,630	5.4
1936	793,618	$3,838	797,456	4,571,670	17.4
1937	344,257	....	344,257	2,309,524	14.9
1938	54,873	....	54,873	2,154,664	2.5
1939	185,474	233	185,707	2,164,007	8.6
1940	323,912	....	323,912	2,677,173	12.1
1941	366,313	....	366,313	2,666,887	13.7
1942	47,726	....	47,726	1,062,288	4.5
1943*	131,508	....	131,508	810,159	16.2

* 10 months total.
† Compiled by Securities and Exchange Commission.

railroad equities closed the year at 27 on the Dow-Jones average—a decline of 81 per cent despite an actual increase in net income. In 1943, net income has in recent months been declining under last year, but the 10 months' total was still substantially above that of the same period of 1942, and the Dow-Jones average as the year drew to a close was running only a little better than 33.

Even in '33 the Market Was More Hopeful

By way of contrast, the Dow-Jones stock price average closed the year 1933 at 40 when the railroads' net income was a deficit of almost $6,000,000; and it closed the year 1934 at 36 when the deficit was almost $17,000,000.

Also by way of contrast, the Dow-Jones industrial average at the end of 1929 was 241 and in recent weeks has been in the neighborhood of 135. Railroad bonds, according to the Dow-Jones computation, have been selling at prices to yield an average of more than 7 per cent, as compared to less than 5 per cent on industrial issues and less than 6 per cent on utilities.

The factors making for this persistence of poor railroad investment credit are many and complex, but chief among them may be noted the carriers' misfortunes of the 1930's, which left an impression which will doubtless take still more years of favorable earnings to obliterate. The investment community as yet lacks conviction that the railroads will be able to maintain their hold on traffic and earnings in the post-war years—and seems disposed to wait and see. Whatever may be the confidence in the railroads' *intrinsic* capacity to hold on to traffic in the face of revived and fortified competition by highway, water, and air—nobody can be assured that much traffic may not *arbitrarily* be diverted from the rail carriers (by such devices, for example, as the political proposal that all first class mail be transported by air, regardless of cost).

When it comes to a matter of the nation's need for efficient transportation service as a means to adequate national defense, the railroads have a case not inferior, certainly, in its claim for national concern to that of any other transportation agency. The country is, however, enjoying its present railroad service without having been put to the necessity for expenditure of tax funds for railroad promotion—as has occurred in behalf of all other agencies of transportation except the railroads; but it is a peculiar quirk of human nature that those things which are most costly and most troublesome are often also the best beloved. It remains a question how soon the political authorities can be brought to see that unlimited funds cannot be expended in promoting all other agencies of transportation without, at length, coming to a point where railroads will have to be similarly promoted, or suffer their services to deteriorate.

Don't Want Same Brick to Hit Them Twice

Such misgivings as these naturally cause investors—badly burnt once—to hold back until they have some tangible evidence, rather than wishful thinking alone, to persuade them that the nation will, in fact, adopt a policy toward transportation which does not single out especial "pets", but will permit each useful form a reasonable chance to find without artificial hindrance its niche of most economic service; and a fair opportunity to earn a peacetime livelihood therein.

Receiverships and Trusteeships Established in 1943

Name of Road	Mileage Operated	Long Term Debt in Hands of Public	Capital Stock in Hands of Public
Hoboken Manufacturers	9	$100,000	$400,000
Kansas City, St. Louis & Chicago.	*	None	1,864,200
Middletown & Unionville	14	350,500	150,000
Total three companies	23	$450,500	$2,414,200

* Operated by the Alton.

Equity-Holders to Chopping Block

The insistence of the Interstate Commerce Commission (and its support by the Supreme Court) on freezing out the equity interest in reorganizations has probably not done this class of security any notable service in the eyes of investors. Denying these investors even a contingent participation in future company earnings is justifiable, morally, only on informed conviction that the conditions of the '30's are rather more likely than not to be no unique experience for the railroads. When officials as close to transportation as the interstate commerce commissioners are, take the pessimistic view of

Railroads Taken from Receivership or Trusteeship During 1943

Name of Road	Mileage Operated
Ann Arbor	294
Burlington, Muscatine & Northwestern	11
Chicago, Attica & Southern	59
Fort Smith, Subiaco & Rock Island	*
New York & Greenwood Lake	..
Northern Railroad of New Jersey	..
Wilmington, Brunswick & Southern	30
Total	394

* Removed from trusteeship in 1942.

Principal Equipment Trust Issues Sold in 1943

Road	Maturity	Amount	Int. Rate %	Sold to Banker: Price	Sold to Banker: Cost	Purchaser
Baltimore & Ohio	1943–1953	$3,500,000	3	100.125	2.98	Halsey, Stuart & Co., et al.
Baltimore & Ohio	1943–1953	4,000,000	3	100.057	2.99	Halsey, Stuart & Co., et al.
Chesapeake & Ohio	1944–1953	5,200,000	1¾	99.26	1.90	Halsey, Stuart & Co., et al.
Cin., N. O. & Tex. Pac., Ser. J	1943–1953	1,960,000	1¾	99.3759	1:87	Halsey, Stuart & Co., et al.
Illinois Central, Ser. W	1944–1951	15,000,000	2½	98.3373	2.94	Halsey, Stuart & Co., et al.
New York Central	1944–1953	5,300,000	2	99.279	2.14	Halsey, Stuart & Co., et al.
N. Y., Chi. & St. Louis	1944–1958	1,230,000	2¼	99.0799	2.38	Salomon Bros. & Hutzler, et al.
N. Y., Chi. & St. Louis	1944–1958	2,025,000	2⅜	99.39	2.22	Halsey, Stuart & Co.
Northern Pacific	1944–1953	3,200,000	2	99.689	2.06	First Boston Corp., et al.
Pennsylvania, Ser. N	1944–1958	6,450,000	2¼	100.771	2.15	Salomon Bros. & Hutzler, et al.
Pennsylvania, Ser. N	1944–1958	5,790,000	2¼	101.0179	2.10	Halsey, Stuart & Co., et al.
Southern, Ser. KK	1943–1953	2,820,000	1⅞	99.2259	2.03	Harris, Hall & Co., et al.

Railroads in the Hands of Receivers or Trustees on December 31, 1943

Road	Mileage operated	Mileage owned	Date of receivership or trusteeship	Long term debt in hands of public	Capital stock in hands of public	Total securities in hands of public	Receiver's or trustee's certificates in hand of public	Principal amount of obligations in default as to principal and/or interest
Akron, Canton & Youngstown	171	19	Apr. 4, 1933	$3,995,500	$1,500,000	$6,009,764	None	$3,550,000
Northern Ohio	....	152	Apr. 4, 1933	2,500,000	79,700	2,579,700	None	2,500,000
Alabama, Tennessee & Northern	218	215	Dec. 15, 1934	3,783,789	1,533,848	5,502,637	None	3,783,789
Alton	959	651	Nov. 25, 1942	45,350,000	None	46,327,560	None	45,350,000
Kansas City, St. Louis & Chicago	....	157	May 7, 1943	None	1,864,200	1,864,200	None	None
California & Oregon Coast	15	15	Feb. 19, 1925	209,226	350,000	559,226	$25,000	209,226
Catonsville Short Line	....	4	Jan. 1, 1942	None	2,200	2,200	None	None
Central of Georgia	1,816	1,405	Dec. 19, 1932(a)	52,229,710	None	55,992,122	2,082,521	52,229,710
Central Railroad of New Jersey	657	377	Oct. 31, 1939	50,666,816	11,942,800	62,609,616	None	48,731,000
Chicago & North Western	8,100	7,867	June 28, 1935	323,518,603	180,835,300	548,970,873	None	305,820,000
Chicago, Indianapolis & Louisville	541	512	Dec. 30, 1933	26,106,000	1,818,000	31,551,054	None	26,071,000
Chicago, Milwaukee, St. Paul & Pacific	10,740	9,771	June 29, 1935	446,614,017	224,396,313	674,510,330	17,289,000	262,057,559(b)
Chicago, Rock Island & Pacific	7,751	4,921	June 7, 1933	266,933,982	128,892,512	395,826,494	12,294,000	173,124,982
Chicago, Rock Island & Gulf	....	635	Oct. 31, 1933	None	None	None	None	None
Choctaw, Oklahoma & Gulf	....	785	Oct. 31, 1933	8,935,000	None	8,935,000	None	None
Peoria Terminal	29(c)	27(c)	Oct. 31, 1933	930,000	None	930,000	None	930,000
Rock Island, Arkansas & Louisiana	....	376	Aug. 31, 1933	11,453,600	None	11,453,600	None	11,453,600
Rock Island, Memphis Terminal	....	6(c)	Oct. 31, 1933	None	None	None	None	None
Rock Island, Omaha Terminal	....	3(c)	Oct. 31, 1933	None	None	None	None	None
Rock Island, Stuttgart & Southern	....	21	Oct. 31, 1933	None	None	None	None	None
St. Paul & Kansas City Short Line	....	417	Aug. 31, 1933	12,744,170	None	12,744,170	None	12,744,170
Denver & Rio Grande Western	2,404	2,108	Nov. 1, 1935	125,491,000	13,754,400	142,730,400	None	120,216,000
Denver & Salt Lake Western	....	38	Nov. 1, 1935	None	None	3,110,850	None	None
Duluth, South Shore & Atlantic	550	447	Jan. 1, 1937	3,822,000	10,827,500	14,649,500	None	3,822,000
Mineral Range	26	26	June 1, 1937	317,071	705,800	1,022,871	None	317,071
Florida East Coast	682	676	Sept. 1, 1931(d)	57,000,000	37,500,000	94,500,000	1,114,000	45,000,000
Fonda, Johnstown & Gloversville	20	20	Apr. 20, 1933	6,143,000	3,000,000	9,179,075	None	6,143,000
Georgia & Florida	408	363	Oct. 19, 1929	7,561,392	13,382,441	22,106,473	600,000	6,061,392
Hoboken Manufacturers	9	2	July 27, 1943	100,000	400,000	500,000	None	100,000
Meridian & Bigbee River	50	50	June 15, 1933	500,000	300,000	800,000	925,000	500,000
Middletown & Unionville	14	14	Aug. 9, 1943	350,500	150,000	500,500	None	350,500
Minneapolis, St. Paul & Sault Ste.Marie	3,219	3,160	Dec. 31, 1937	87,322,800	18,086,700	117,098,753	None	87,322,800
Missouri Pacific	7,097	6,217	Apr. 1, 1933	399,027,500	154,639,600	584,708,320	None	384,616,500(e)
Boonville, St. Louis & Southern	....	0.16	June 1, 1936	245,000	None	245,000	None	245,000
Cairo & Thebes	....	25	Dec. 1, 1937	1,699,000	None	1,699,000	None	1,699,000
Chester & Mount Vernon	....	64	Dec. 1, 1937	None	None	None	None	None
Fort Smith Suburban	....	7	Dec. 1, 1937	None	None	None	None	None
Marion & Eastern	....	3	Dec. 1, 1937	None	None	None	None	None
Missouri-Illinois	172	123	July 1, 1933	1,465,500	1,102,500	2,568,000	None	None
Missouri Pacific R.R. Corp. in Nebr.	....	349	May 1, 1933	None	None	None	None	None
Natchez & Southern	7	7	Dec. 1, 1937	None	None	None	None	None
New Orleans, Texas & Mexico	191	173	Apr. 1, 1933	43,113,154	859,799	43,972,953	None	42,970,000
Asherton & Gulf	32	32	Dec. 1, 1937	None	None	None	None	None
Asphalt Belt	18	18	Dec. 1, 1937	None	None	None	None	None
Beaumont, Sour Lake & Western	146	84	May 1, 1933	22,154	None	22,154	None	None
Houston North Shore	....	27	May 1, 1933	None	None	None	None	None
Houston & Brazos Valley	37	37	Dec. 1, 1937	None	None	None	None	None
International-Great Northern	1,155	1,101	Apr. 1, 1933	45,354,180	None	45,768,322	None	44,927,700
Austin Dam & Suburban	....	2(f)	Dec. 1, 1937	None	None	None	None	None
New Iberia & Northern	104	65	Dec. 1, 1937	None	None	None	None	None
Iberia, St. Mary & Eastern	....	39	Dec. 1, 1937	None	None	None	None	None
Orange & Northwestern	62	62	Dec. 1, 1937	None	None	None	None	None
Rio Grande City	18	18	Dec. 1, 1937	None	None	None	None	None
St. Louis, Brownsville & Mexico	606	560	May 1, 1933	44,034	None	44,034	None	None
San Antonio Southern	45	29	Dec. 1, 1937	None	None	None	None	None
San Antonio, Uvalde & Gulf	317	314	May 1, 1933	35,275	None	35,275	None	None
San Benito & Rio Grande Valley	116	116	Dec. 1, 1937	None	None	None	None	None
Sugar Land	41	19	Dec. 1, 1937	None	None	None	None	None
Murfreesboro-Nashville	15	15	Sept. 5, 1942	25,000	16,000	41,000	None	25,000
New Jersey & New York	39	29	July 1, 1938	1,022,960	366,400	1,389,360	None	1,022,960
New York, New Haven & Hartford	1,838	1,158	Oct. 23, 1935	247,232,250	206,155,300	473,633,713	None	178,752,050
Hartford & Connecticut Western	....	22	July 31, 1936	None	338,200	338,200	None	None
Old Colony	....	453	June 2, 1936	14,348,200	12,500,800	28,249,000	None	14,348,200
Boston & Providence	....	65	Aug. 5, 1938	2,170,000	3,996,000	6,166,000	None	2,170,000
Providence, Warren & Bristol	....	14	Feb. 13, 1937	None	44,900	44,900	None	None
New York, Ontario & Western	546	327	May 20, 1937	29,981,000	58,114,043	90,053,093	68,746	29,728,000
New York, Susquehanna & Western	262	120	June 1, 1937	12,431,000	None	12,431,000	None	12,231,000
Pittsburg, Shawmut & Northern	190	156	Aug. 1, 1905	14,655,600	15,000,000	29,655,600	2,044,350	14,655,600
Rio Grande Southern	172	172	Dec. 16, 1929	2,728,000	930,300	3,658,300	None	2,728,000
Rutland	407	393	May 5, 1938	9,216,000	9,080,300	18,296,300	None	9,216,000
St. Louis-San Francisco	4,944	4,874	Nov. 1, 1932(g)	264,575,597	114,701,526	392,911,418(h)	None	261,588,597
St. Louis, Southwestn & Affiliated Cos.	1,607	1,413	Dec. 12, 1935	51,937,395	4,723,500	79,813,994	None	30,564,395
Seaboard Air Line	4,179	3,305	Dec. 23, 1930	159,235,256	84,964,792	244,200,048	12,824,600	145,230,256
Georgia, Florida & Alabama	....	133	Nov. 7, 1931	1,750,000	1,500,000	3,250,000	None	1,750,000
Seaboard-All Florida	....	162	Feb. 2, 1931	3,665,750	None	3,665,750	None	3,665,750
East & West Coast	side track		Feb. 2, 1931	166,647	None	166,647	None	166,647
Florida Western & Northern	....	233	Feb. 2, 1931	3,811,103	None	3,811,103	None	3,811,103
Tampa Northern	2	49	May 7, 1942	1,258,000	None	1,258,000	None	1,258,000
South Dayton	....	1	Jan. 12, 1937	Data not available				
Tallulah Falls	57	57	June 23, 1923	None	None	None	None	None
Virginia & Truckee	46	46	Apr. 27, 1938	None	5,000,000	5,000,000	None	None
Waco, Beaumont, Trinity & Sabine	41	41	Feb. 8, 1930	None	None	None	12,734	None
Western Pacific	1,195	1,137	Aug. 2, 1935	65,308,612	75,800,000	141,108,612	9,300,000	59,698,509
Wisconsin Central	1,122	984	Dec. 2, 1932	35,431,931	11,391,700	46,823,631	None	33,513,000
Yosemite Valley	78	78	Jan. 29, 1937	2,318,000	1,448,774	3,780,530	None	2,318,000
Yreka Western	8	8	Sept. 16, 1935	None	None	None	39,950	None

(a) Changed to trusteeship June 19, 1940.
(b) Does not include 5% Convertible Adjustment Mortgage Bonds in the principal amount of $182,873,693, interest on which is cumulative and matures with the principal on January 1, 2000, unless previously earned and declared payable.
(c) Yard tracks and sidings.
(d) Changed to trusteeship Apr. 21, 1941.
(e) Funds were deposited with J. P. Morgan & Co., Inc., as Paying Agent, on November 1, 1943, to pay and retire principal in amount of $24,797,900, if presented before January 1, 1944, on Long Term Obligations in default and in the hands of the public.
(f) Yard switching tracks.
(g) Changed to trusteeship May 16, 1933.
(h) On October 14, 1943, the Court authorized compromise settlement of all R. F. C. claims, including principal amount $5,190,000, and accrued interest, for $4,504,575. Also all claims of R. C. C., including note, principal amount $3,307,422 and accrued interest, for $1,300,000. R. C. C. to retain all amounts hereafter distributable under the Marshalling and Distributing Plan of R. C. C. These settlements were expected to be completed during November.

Note:—The effort has been made, in the above table, to list only those securities of bankrupt carriers which are actually in the hands of the investing public—and to exclude securities of one carrier held by an affiliated carrier. Where securities are held by other railways not affiliated with the issuing company, however, they are included in the above list as publicly held. Owing to the complexities of some corporate structures, the decision as to the fact of public or other-carrier ownership has perforce, in some instances, been arbitrary. The purpose has been to give a general picture of the public stake in bankrupt carriers rather than a comprehensive tabulation of legal obligations.

Mileage in the Hands of Receivers or Trustees

(Figures to 1942, Inclusive, from I. C. C. Statistics for Year Ended December 31, 1942. Figures for 1943 Compiled by *Railway Age*.)

Year ended	Miles of road operated by receivers or trustees at close of year	Net change during year in miles of road operated	No. of roads in charge of receivers or trustees at close of year
June 30, 1894	40,819	.....	192
1895	37,856	−2,963	169
1896	30,475	−7,380	151
1897	18,862	−11,614	128
1898	12,745	−6,117	94
1899	9,853	−2,892	71
1900	4,178	−5,675	52
1901	2,497	−1,681	45
1902	1,475	−1,022	27
1903	1,185	−290	27
1904	1,323	+138	28
1905	796	−527	26
1906	3,971	+3,176	34
1907	3,926	−45	29
1908	9,529	+5,603	52
1909	10,530	+1,001	44
1910	5,257	−5,273	39
1911	4,593	−664	39
1912	9,786	+5,193	44
1913	16,286	+6,500	49
1914	18,608	+2,322	68
1915	30,223	+11,615	85
1916	37,353	+7,130	94
Dec. 31, 1916	34,804	−2,550*	80
1917	17,376	−17,428	82
1918	19,208	+1,832	74
1919	16,590	−2,618	65
1920	16,290	−300	61
1921	13,512	−2,778	68
1922	15,259	+1,747	64
1923	12,623	−2,636	64
1924	8,105	−4,518	61
1925	18,687	+10,582	53
1926	17,632	−1,055	45
1927	16,752	−880	40
1928	5,256	−11,496	33
1929	5,703	+447	29
1930	9,486	+3,783	30
1931	12,970	+3,484	45
1932	22,545	+9,575	55
1933	41,698	+19,153	78
1934	42,168	+470	80
1935	68,345	+26,177	87
1936	69,712	+1,367	91
1937	70,884	+1,172	109
1938	76,938	+6,054	109
1939	77,013	+75	108
1940	75,270	−1,743	103
1941	69,859	−5,411	91
1942	66,904	−2,955	87
1943	65,262	−1,642	86

* Represents decrease for six months.

the future which they must take to justify their mayhem to equity holdings, it is not, perhaps, strange that their view finds reflection in other quarters.

Furthermore, since unfavorable earnings of the '30's were to a large degree occasioned by federal policies toward transportation—rather than, primarily, by intrinsic weakness in the equity-owners' position—it is, apparently, now a settled policy that the federal government will insist on playing the mortician (possibly even the executioner), thereby supplementing the casualties inflicted by its malpractice as a physician. Under such conditions, it is not to be wondered that many investors believe that there are other places where they can put their money with better hope of getting it back.

Wage Trends Induce Pessimism

The wage policies of the federal government, likewise, are not calculated to inspire confidence in investors. The unions have been given to understand that no request for higher wages will be utterly rejected and, furthermore, that if they do not believe concessions made to them through established channels are large enough, they may, with perfect impunity, reject these concessions and, as a consequence, receive larger ones. Similarly, it has been observed that when the railroads are in such difficulties as they were in 1938, they cannot with any confidence expect that the present political regime in control of wage-negotiating machinery, will provide tribunals which will give consideration to their case, commensurate to its seriousness.

There remain as hopeful factors—in the prospect that the railroads may persist as privately-financed enterprise—(1) the continuance, so far, of relatively favorable earnings, (2) the consequent ability of the carriers to finance, to a considerable degree, needed improvements out of earnings, and (3) the persistent popularity of equipment trust obligations. If post-war production and traffic are as large as many well-informed students believe they are likely to be, it is likely that reasonably attractive railway earnings may continue into the peace years, despite the forces which seek to depress them. Should such earnings persist, the investment market would ultimately reflect them despite the continuance of political factors which appear to be unfavorable. There is no theoretical argument which, in the long run, can withhold a favorable credit position to the railroads if earnings maintain a favorable level; any more than theoretical speculations could sustain credit in the prolonged absence of reasonable earnings.

Political Climate *Could* Improve

The fact that the carriers give promise of coming to the end of the war (in the absence of runaway inflation of wages and prices) with substantial amounts of cash, and continuing credit for equipment purchases, will at least enable them to make a substantial *beginning* at equipping themselves competitively for the retention of their share of the nation's post-war traffic. The more conclusively they are able to do this, of course, the more surely will substantial earnings persist into peacetime; and, if this happens, investors' prejudices against the railways' future will, in time, mitigate, if not entirely vanish. Pessimistic predilections will not hold out indefinitely against tangible evidence of the railways' ability to cope with their post-war problems.

In addition, since the railways' difficulties are so

Summary of Railroad Receiverships and Trusteeships, 1876 to 1943

	Roads Placed in Receivership or Trusteeship		Roads Taken from Receivership or Trusteeship*			Roads Placed in Receivership or Trusteeship		Roads Taken from Receivership or Trusteeship*	
Year	No. of roads	Miles	No. of roads	Miles	Year	No. of roads	Miles	No. of roads	Miles
1876	42	6,662	30	3,840	1910	7	735	17	1,100
1877	38	3,637	54	3,875	1911	5	2,606	13	1,386
1878	27	2,320	48	3,906	1912	13	3,784	12	661
1879	12	1,102	65	4,909	1913	17	9,020	6	1,159
1880	13	885	31	3,775	1914	22	4,222	9	1,470
1881	5	110	29	2,617	1915	12	20,143	11	3,914
1882	12	912	16	867	1916	9	4,439	26	8,355
1883	11	1,990	18	1,354	1917	19	2,486	20	10,963
1884	37	11,038	15	710	1918	8	3,519	11	763
1885	44	8,836	22	3,156	1919	7	244	8	459
1886	13	1,799	45	7,687	1920	10	541	7	380
1887	9	1,046	31	5,478	1921	14	1,744	11	4,173
1888	22	3,270	19	1,596	1922	12	4,330	15	6,151
1889	22	3,803	25	2,930	1923	10	2,218	8	637
1890	26	2,963	29	3,825	1924	11	920	14	3,992
1891	26	2,159	21	3,223	1925	6	11,368	6	638
1892	36	10,508	28	1,922	1926	6	88	12	12,852
1893	74	29,340	25	1,613	1927	6	924	5	142
1894	38	7,025	42	5,643	1928	1	19	4	209
1895	31	4,089	52	12,831	1929	3	634	5	562
1896	34	5,441	58	13,730	1930	4	4,752	2	1,048
1897	18	1,537	42	6,675	1931	19	5,195	2	102
1898	18	2,069	47	6,054	1932	13	11,817	8	394
1899	10	1,019	32	4,294	1933	18	21,222	2	298
1900	16	1,165	24	3,477	1934	1	81	2	40
1901	4	73	17	1,139	1935	16	29,018	5	436
1902	5	278	20	693	1936	4	8	3	122
1903	9	229	13	555	1937	23	1,937	2	179
1904	8	744	13	524	1938	9	6,194	8	290
1905	10	3,593	6	679	1939	3	733	4	401
1906	6	204	8	262	1940	..	....	6	3,675
1907	7	317	6	114	1941	1	25	9	5,031
1908	24	8,009	3	138	1942	4	961	7	2,230
1909	5	859	12	2,629	1943	3	23	6	394

* Prior to 1938 these figures covered foreclosure sales only.

largely of political origin, there remains always the chance, if not the definite expectation, that the political climate may improve. Their behavior during the war affords ample reasons why their political environment should improve, but concrete evidence that it has actually done so is, so far, not discernible. Then, too, there is the possibility—of which there are as yet no recognizable symptoms—that the railway unions may ultimately recognize their dependence for substantial employment upon railroads, able from their earnings to attract sustained investment, necessary to maintain the competitive modernity in their services.

Sales of Securities

There was little activity in financing during the year—except equipment trust offerings, principal among which are tabulated elsewhere herewith. There were some mortgage bond sales, however, and an Erie issue of $10,000,000 collateral trust 3⅛ per cent notes, which were sold to the underwriter at 100.145. A first and refunding issue of 25-year 3¾ per cent bonds of the Pennsylvania, Ohio & Detroit was sold at 100¼. A 20-year 3¾ per cent first mortgage issue by the Atlanta & Charlotte was sold through competitive bidding at 99.039.

Little progress was made during the year in completing reorganizations of railroads in the hands of the courts. A number of reorganization plans were challenged, unsuccessfully, in the courts. Now that the hope of securing more liberal treatment for the equity interest seems foreclosed, there appears to be no reason why some additional reorganizations should not now proceed to a conclusion.

Repayments to R. F. C.

Details of railroad indebtedness and repayments to the Reconstruction Finance Corporation are not available. However, in an announcement on November 16, Jesse Jones, Secretary of Commerce, stated that the R. F. C. had, since it commenced operation in 1932, disbursed a total of $1,050,203,675 in loans to the railroads and in purchases of railway securities from the Public Works Administration. He disclosed further that, as of the time of his announcement, the Reconstruction Finance Corporation had recovered $643,216,064 of the disbursements it had made on account of the railroads.

Dividend Changes

There were few dividend changes during the year. While earnings in all cases would have justified larger dividends, on the comparatively few issues where they are being paid; and would have permitted dividends to be instituted where they are not being paid—the carriers have persisted in their policy of using the bulk of their surplus funds to strengthen their position with respect to their indebtedness. Some changes did occur, however, among which were the following:

Atlantic Coast Line—paid $3 on its common stock during 1943 as compared with a disbursement of $2 on this stock in 1942.

Chesapeake & Ohio—declared an extra dividend amounting to 50 cents on its common stock in December.

Chicago & Eastern Illinois—declared $1 on its 5 per cent Class A stock in September, placing the company on record as having met full dividend obligations. This company also declared an initial 50 cents on its common stock in November.

Kansas, Oklahoma & Gulf—declared $6 on its 6 per cent preferred stock in November; $3 a year ago.

Norfolk Southern—declared an initial $2 on its common stock in November.

Pittsburgh & Lake Erie—$2.50 declared in November; $3.50 a year ago.

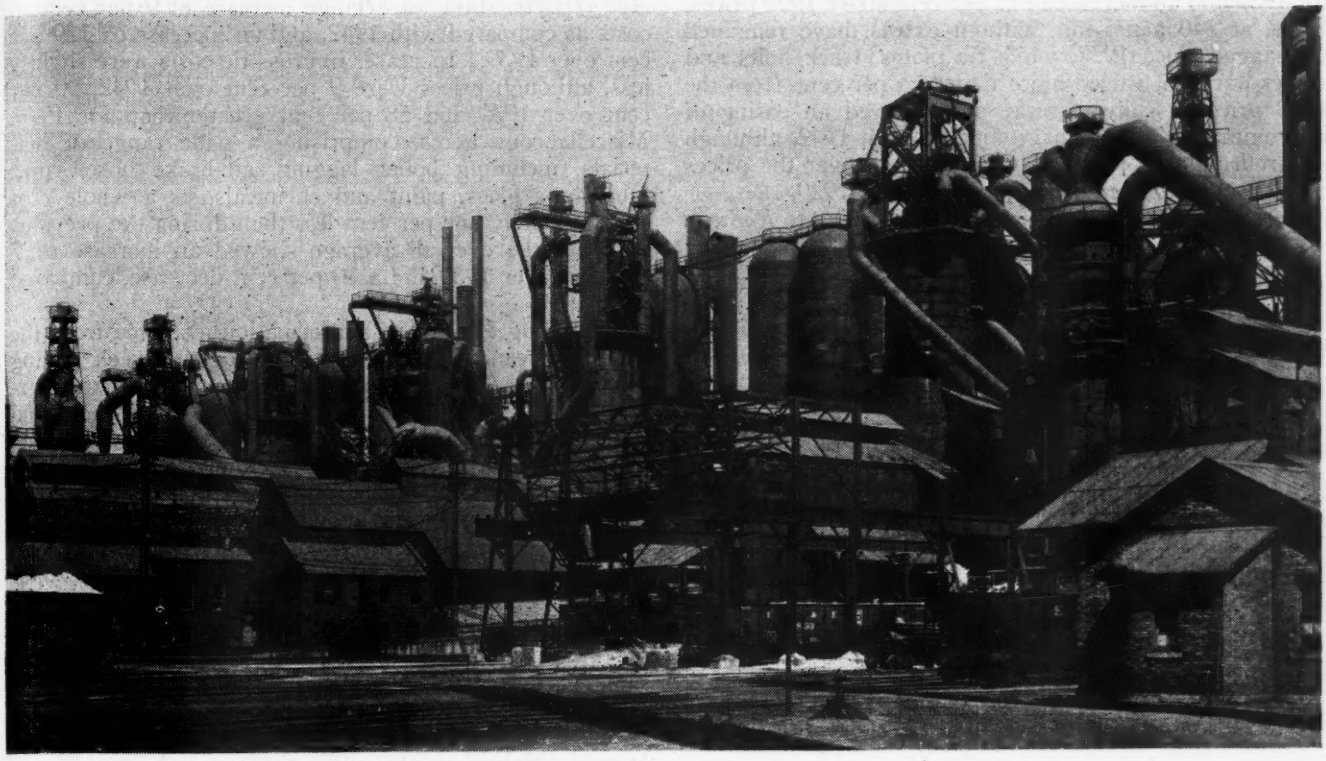
Southern—declared an initial $2 on its present common stock in February. A previous payment of 35 cents on its old $100-par shares was made in August, 1931.

Wabash—an initial $1 was declared on its common stock in February.

* * * *

Rush-Hour Scene at the Jamaica (L. I., N. Y.) Station of the Long Island

More than 600 trains pass daily through this suburban transfer station. Here may be seen a freight train, a steam passenger train, a multiple-unit electric train and "double-deck" coaches which help solve the problem of congestion. The station building appears at the far right.



Steel Is Still the Controlling Factor in Material Production

Price Trends Were Mixed in 1943

Costs of lumber, ties and fuel soar—Iron and steel products steadier

By C. Miles Burpee

Purchasing and Stores Department Editor

AMERICAN railways are paying more today for most of the materials they buy. In the face of this trend, the most exceptional factor in any study of material prices is railway freight rates for they have remained at the same or slightly lower levels than before the war. As a whole, railway freight is being moved at a lower average rate than at any time during the last twenty-five years—less than a cent a ton-mile. Yet, wages, taxes and the average over-all cost of materials have increased substantially since August, 1939.

During 1943 the effects of governmental regulation of price were reflected in the general stability of the basic costs of many railway materials. This was especially true of iron and steel products, whose prices remained practically unchanged from 1942. On the other hand, the prices of forest products, coal and fuel oil rose substantially. Governmental price regulation in 1943 prevented the repetition of the excessive increases in material prices that were experienced during World War I. It also relieved railway purchasing officers of many details and allowed them to devote more time and consideration to ways and means of procuring the thousands of items needed to maintain railway facilities.

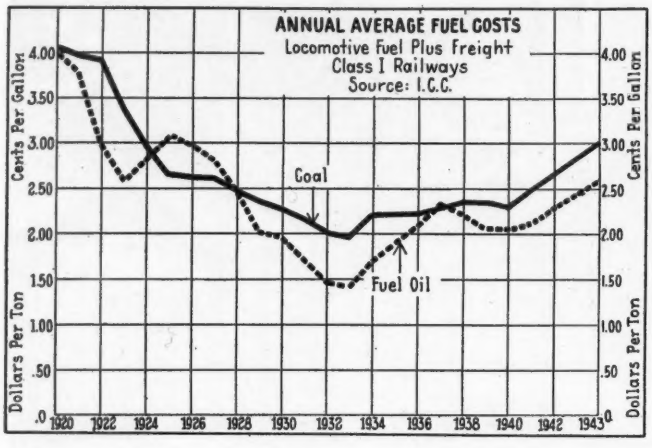
The average cost of coal consumed by locomotives of Class I railways during the first nine months of 1943, as reported to the Interstate Commerce Commission, was $2.41 a ton at the mines, the highest for any year since the inception of the record in 1927. This was 28 cents a ton, or 13 per cent more than the 1942 average; 39 cents, or 19 per cent, more than in 1941; 53 cents, or 28 per cent, more than in 1940; and 50 cents, or 26 per cent, more than in 1939.

Fuel oil cost averaged 2.60 cents a gal. for all Class I roads during the first nine months, as reflected by I. C. C. figures. This was an increase of 0.31 cents a gal. or 13 per cent, over the cost in the year 1942; an increase of 0.45 cents, or 21 per cent, over 1941; and 1.58 cents, or 29 per cent, over both 1940 and 1939. Gasoline increased 0.53 cents a gal. or 5 per cent more than for 1942; reaching an average cost of 10.77 cents a gal. during the first three-quarters of 1943, the highest price attained since 1929. Diesel fuel oil averaged 5.17 cents per gal. during the first nine months of 1943, and represented an increase of 0.17 cents a gal. or 4 per cent over the year 1942, 14 per cent more than for 1941, 15 per cent more than for 1940 and 17 per cent greater than for 1939.

By reason of the broad application of governmental price control, the general prices for railway iron and steel products remained stable during the year. Reports received by *Railway Age* from co-operating railways throughout the country indicate that the average cost of iron and steel products eased slightly during the year, with a reduction of approximately one per cent compared with 1942. However, these same statistics indicate an over-all increase of 8 per cent over the price of the same items

for 1939 and an increase of 15 per cent above 1929 prices. Rails, at $40 a net ton, without extras, have remained unchanged since 1937, while tie plates, track bolts and spikes have not varied more than two per cent from the 1942 prices. Railway scrap sold showed an easing of approximately 3 per cent, compared with 1942, although still reflecting an increase of 27 per cent over the prices of 1939 and 37 per cent more than for 1929.

Selected lumber and timber items, according to *Railway Age* reports, show an average increase of 9 per cent in costs as compared with 1942, and an increase of 129 per cent over 1939. Increases in cross-tie costs were slightly less, although prices were 9 per cent over 1942, 90 per cent over 1939 and 58 per cent greater than for 1929. Miscellaneous items, comprising a wide range of materials, including boiler lagging, air-brake hose, rope, lubricants, glass, paint and chemicals, as a whole cost approximately one per cent less than during the previous year but the over-all average showed an increase of 7 per cent over 1939 and a 10 per cent decrease, compared with 1929.



Annual Average Costs of Liquid Fuels—Class I Railroads*

	Cents Per Gallon Fuel Oil					
	United States	Eastern District	Southern District	Western District	Gasoline	Diesel Fuel
1920	3.97	9.17	3.49	3.97	....	....
1921	3.77	5.91	4.22	3.75	....	....
1922	2.98	4.75	3.40	2.96	....	....
1923	2.58	7.77	3.05	2.48	....	....
1924	2.80	4.52	3.61	2.75	....	....
1925	3.18	4.67	3.89	3.11	....	....
1926	2.95	4.87	3.92	2.87	....	....
1927	2.80	4.66	3.68	2.73	11.78	....
1928	2.46	3.53	2.69	2.43	11.26	....
1929	2.10	3.24	2.28	2.07	11.08	....
1930	1.99	3.23	2.27	1.95	9.84	....
1931	1.71	2.54	1.87	1.69	6.98	....
1932	1.49	2.17	1.49	1.47	7.12	....
1933	1.37	2.50	1.90	1.30	7.10	....
1934	1.73	3.40	2.90	1.70	7.60	....
1935	1.90	3.10	2.50	1.90	7.80	....
1936	2.10	3.55	2.61	2.04	8.33	3.84
1937	2.35	3.70	2.97	2.30	8.81	4.39
1938	2.21	3.30	2.67	2.18	8.03	4.45
1939	2.01	2.93	2.39	1.98	7.97	4.40
1940	2.02	3.20	2.87	1.97	8.11	4.48
1941	2.15	3.73	3.10	2.10	9.12	4.52
1942	2.29	4.48	4.12	2.24	10.24	5.00
1943†	2.60	5.05	4.52	2.52	10.77	5.17

* As Reported to I. C. C.
† 9 Mos.

Annual Average Costs of Coal Consumed by Locomotives—Class I Railroads*

	Dollars Per Net Ton									
	United States		Eastern		Pocahontas		Southern		Western	
	A	B	A	B	A	B	A	B	A	B
1924		3.03		3.11		2.13		2.78		3.22
1925		2.72		2.75		1.78		2.62		3.02
1926		2.63		2.67		1.82		2.31		2.94
1927	2.21	2.66	2.09	2.70	1.68	1.76	1.85	2.26	2.73	3.00
1928	2.12	2.53	1.95	2.55	1.61	1.69	1.81	2.19	2.66	2.82
1929	2.01	2.40	1.88	2.45	1.60	1.69	1.72	2.10	2.47	2.61
1930	1.95	2.34	1.83	2.39	1.60	1.68	1.67	2.06	2.39	2.53
1931	1.83	2.21	1.67	2.22	1.57	1.66	1.56	1.95	2.32	2.45
1932	1.66	2.05	1.46	2.04	1.49	1.58	1.41	1.79	2.17	2.31
1933	1.58	1.96	1.38	1.95	1.43	1.51	1.38	1.75	2.06	2.17
1934	1.83	2.20	1.75	2.33	1.69	1.77	1.64	2.00	2.10	2.19
1935	1.89	2.27	1.82	2.40	1.76	1.85	1.75	2.12	2.11	2.21
1936	1.79	2.34	1.78	2.48	1.75	1.93	1.74	2.21	1.83	2.28
1937	1.89	2.43	1.90	2.55	1.90	2.09	1.85	2.31	1.89	2.36
1938	1.92	2.51	1.94	2.68	1.97	2.19	1.90	2.41	1.89	2.37
1939	1.91	2.49	1.93	2.67	1.98	2.18	1.89	2.40	1.86	2.32
1940	1.88	2.45	1.91	2.61	1.96	2.17	1.89	2.37	1.82	2.30
1941	2.02	2 57	2.05	2.74	2.17	2.37	2.03	2.52	1.92	2.35
1942	2.13	2.70	2.17	2.87	2.31	2.58	2.16	2.69	1.98	2.44
1943 #	2.41	3.03	2.51	3.30	2.58	2.83	2.40	2.97	2.19	2.65

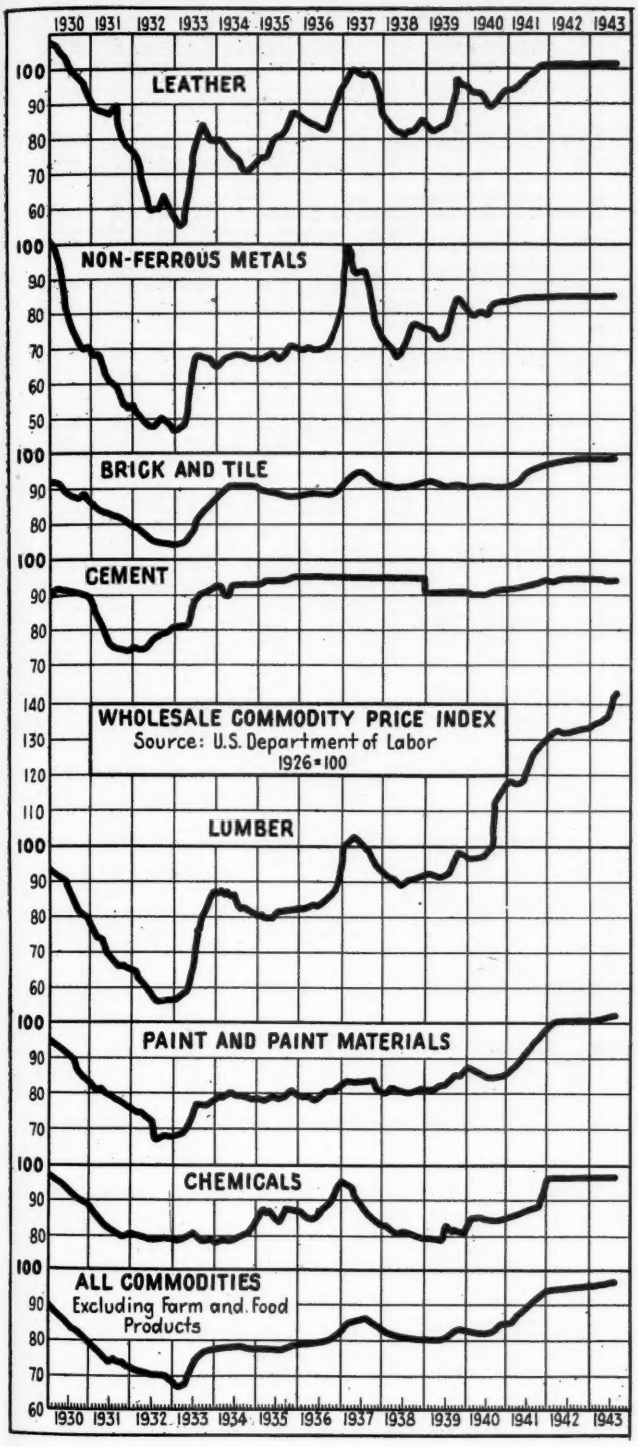
A shows average mine price.
B shows cost of coal consumed including freight and handling costs.
9 Mos.
* As reported to I. C. C.

According to the latest information available from the U. S. Bureau of Labor Statistics for the week ending December 4, the commodity price index of primary markets stood at 102.8 per cent of the 1926 average, and reflected an increase of 1.7 per cent over the same period of 1942, and 37 per cent above the pre-war level of August, 1939. This index also shows that raw materials costs were 68 per cent above the August, 1939, level, those of semi-manufactured commodities were about 25 per cent greater, and of manufactured products 27 per cent greater than pre-war levels. The index for building materials stood at 113.1, the highest since the spring of 1923, and represented a rise of 2.8 per cent over the same period of 1942, and a rise of 26 per cent since August, 1939.

Sharp increases in coal costs during 1943 resulted from a series of events within the coal industry. Early in February, the OPA increased ceiling prices for railway fuel in the Eastern Appalachian district, known as Minimum Price Area No. 1, by 20 to 35 cents a ton above the minimum prices set up in the Guffey Act, as adjusted previously on October 1, 1942. Later in February, coal prices for western Kentucky and Illinois were upped 10 cents a ton, followed by an upward adjustment of 25 cents a ton for Indiana. By reason of the great demand for coal, railways generally had been paying maximum OPA prices prior to the OPA action in February and hence were forced again to move their prices upward in accordance with the new regulations in order to meet commercial competition.

The Bituminous Coal Act of 1937, which otherwise would have expired on April 24, 1943, was extended for 30 days by the action of Congress during the spring, and a second extension carried it to August 24, when it was allowed to expire. In the meantime, the miners' wage scale, which expired on March 31, 1943, was extended for a 30-day period and with the suspension of work on April 30, the mines were taken over by the government, and their operation was placed under the authority of Secretary Harold L. Ickes as Solid Fuels Administrator for War. This was followed on May 2 by an extension of the wage agreement to May 18, and on May 17 by a further extension to May 31.

At the expiration of the third truce, the mines sus-



pended work on June 1, and after the declaration of a fourth truce extending to June 20, the miners went back to work on June 7. A further suspension, which began on June 21 and ended June 24, was followed by the declaration of the fifth truce by the United Mine Workers' Policy Committee, which prevailed until October 31, when the mines again suspended work. President Roosevelt again ordered the mines to be taken over by the government, which had released them only a short time before under the provisions of the Smith-Connally Act. Administrator Ickes immediately attempted the negotiation of a new contract and reached an agreement with the miners on November 2. This agreement finally was approved with slight modifications by the War Labor Board and Mr. Ickes then undertook to have the bituminous coal operators negotiate a contract with the miners on the same basis. An agreement for a wage contract between the operators and the miners, representing 65 per cent of the total bituminous production of the country, was reached on December 11, after nine months of intermittent operation without an owner-worker contract. At this writing, the subcommittee of operators and miners is scheduled to report its findings to a full wage conference to be held in Washington on December 17, and representing all operators and miners. Upon ratification, the agreement must be submitted to the WLB for approval.

Preference ratings were introduced by the Solid Fuels Administration through War Regulation No. 4, which became effective on August 23. Under its provisions, shipping allotments gave preference rating No. 1 to metallurgical coal, No. 2 to lake coal and No. 3 to coal for railways and other purposes. As a result, shipments to railways were reduced and many roads were forced to dip into their stockpiles.

War Regulation No. 5, effective November 7, required each order to be accompanied by full information regarding: (1) the number of days' supply on hand; (2) current monthly consumption; and, (3) the total number of tons of coal ordered for delivery during the current month. This action was followed on November 17 by War Regulation No. 10, effective December 1, to equalize the stocks of coal on hand. Among other provisions, this regulation includes a table showing authorized percentages of orders and shipments, based on the consumer's supply on hand. In accordance with these provisions, the railways and industries generally are allowed to maintain a 25-days' supply, while public utilities may carry sufficient coal supplies for 40 days.

Bituminous coal price ceilings were raised by an average of 17 cents a net ton by the OPA on November 29, to compensate operators to the extent required by recent increases in labor costs. The price increases ranged from 10 to 50 cents a net ton at the mines, in 17 of the 22 bituminous coal districts. In the five other districts, no general increases were provided, but increases of 20 to 25 cents a net ton were granted for underground mines where the loading is done by hand. For the major producing districts, the latter increases ranged from zero to 30 cents a net ton and applied generally to all sizes of bituminous coal. At the same time, additional increases in ceiling prices were granted operators in two districts, because of the adoption of the six-day week in place of the five-day working period. In northern Colorado, district 10, the addition amounted to 25 cents a ton; and in Iowa, district 12, an additional 30 cents a net ton was authorized. The OPA, on December 10, authorized additional increases ranging from 25 to 65 cents a ton for bituminous coal produced by underground mines in District 15, embracing Missouri, Texas, Kansas and Northern Oklahoma.

Despite the many assurances of Mr. Ickes that the new bituminous coal contract would be non-inflationary, straws in the wind tell a different story. Bituminous coal production for the first two full weeks following the agreement (the latest production figures available at this writing) showed an increase of only 6 per cent per week. These figures are far short of the full 14 per cent production increase estimated by Mr. Ickes to equal the 14 per cent increase in working time and the increase in miners' pay.

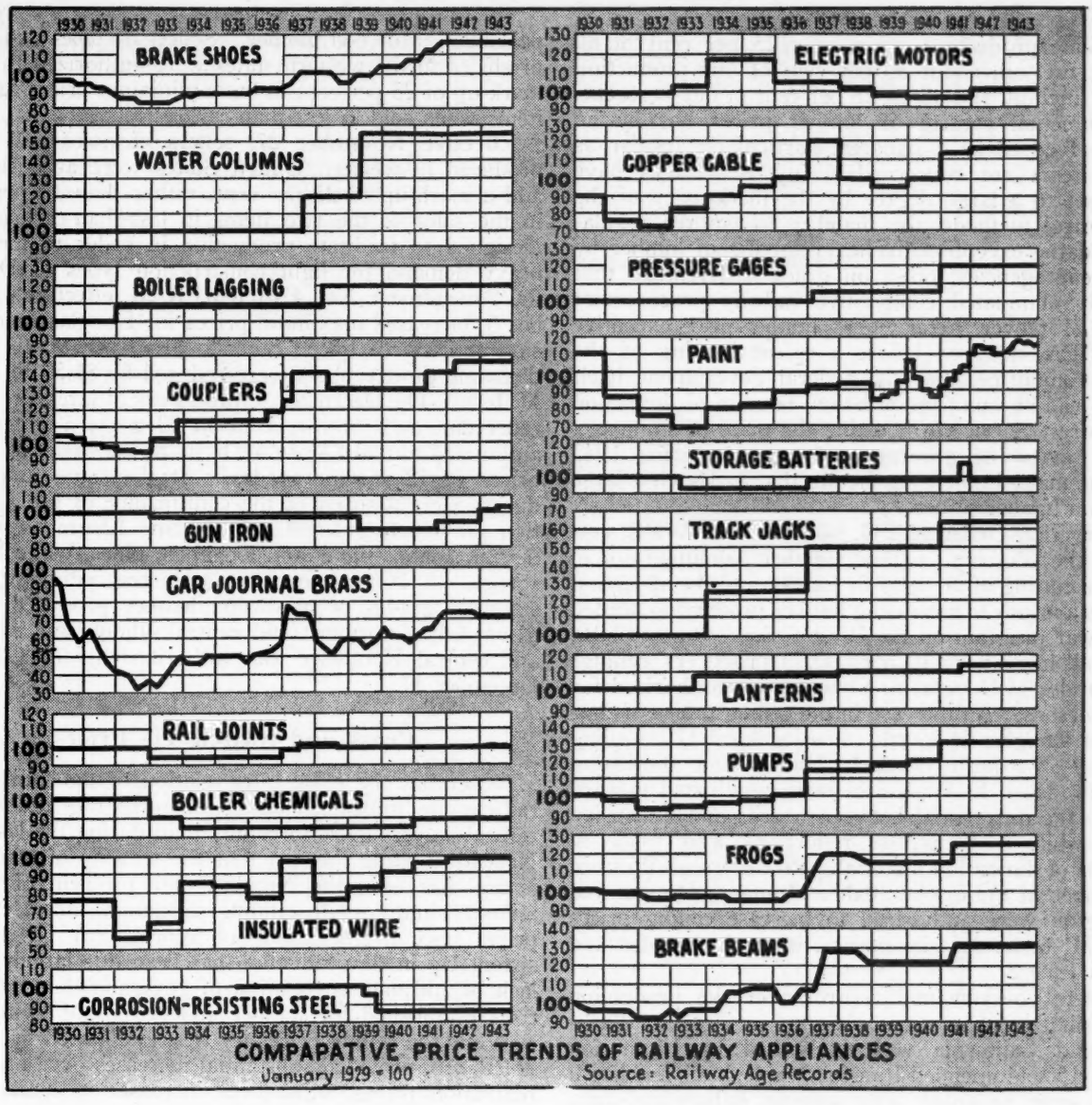
The increased prices of liquid fuels, used by the railways in 1943 resulted from a series of governmental regulations and price adjustments. On February 10, Petroleum Regulation No. 1, providing means by which directions could be issued governing the delivery of

Average Unit Costs of Railroad Materials 1929-1943

Description		Unit	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943 First quarter	1943 Mid-year	1943 Last quarter	1943 Average	Per Cent of 1942	Per Cent of 1939	Per Cent of 1929
TRACK MATERIALS																							
Rail		N.t.	$43.00	$43.00	$43.00	$42.00	$38.79	$36.37	$36.37	$36.375	$41.33	$41.66	$40.00	$40.00	$40.00	$40.00	$40.00	$40.00	$40.00	$40.00	100	100	93
Tie plates	Steel	N.t.	42.10	41.22	38.88	36.40	36.64	39.56	38.73	39.91	44.93	45.45	43.70	43.74	44.00	44.15	43.88	43.88	43.88	43.88	99	100	104
Track bolts	Heat-treated	Cwt.	3.75	3.94	3.74	3.42	3.52	3.71	3.71	3.87	4.40	4.50	4.31	4.34	4.60	4.96	4.99	4.99	4.99	4.99	101	116	133
Track spikes	High-carbon steel	Cwt.	2.71	2.68	2.57	2.45	2.32	2.46	2.46	2.68	3.09	3.54	3.03	3.02	3.02	3.05	3.05	3.05	3.05	3.05	100	100	112
Track shovels	No. 2 carbon steel	Doz.	11.28	10.02	9.98	10.93	11.53	13.20	13.26	12.70	13.02	13.70	13.51	13.63	14.10	15.38	14.95	14.95	15.09	15.00	98	111	133
Wire fence	26 in. woven	Rod.	.426	.428	.396	.383	.370	.402	.416	.402	.502	.516	.490	.503	.49	.56	.54	.54	.54	.54	96	110	127
Steel, structural	Angles	Cwt.	2.35	1.98	1.84	1.73	1.75	1.93	1.96	2.19	2.48	2.48	2.33	2.51	2.55	2.56	2.45	2.45	2.45	2.45	96	105	104
Pipe, cast-iron	12 in. Class B	N.t.	39.41	40.37	35.58	33.94	37.91	40.80	40.60	42.25	42.99	50.58	48.57	49.25	46.00	52.66	52.56	55.56	55.56	55.56	105	114	141
Pipe, culvert	24 in. corr.	Ft.	...	...	...	1.95	1.74	2.02	2.16	2.19	2.54	2.59	2.34	2.38	2.52	2.66	2.80	2.80	2.80	2.80	105	119	...
Ballast	Crushed rock	C.y.	...	...	...	...	...	...	...	...	1.05	.88	.89	.89	.88	1.07	1.05	1.05	1.05	1.05	98	118	...
LOCOMOTIVE AND CAR MATERIALS																							
Bolts, with nuts	¾ x 6, machine	100	4.87	4.81	4.20	4.04	4.70	4.59	4.08	3.97	4.93	4.75	4.36	4.52	4.90	5.48	5.53	5.53	5.53	5.53	101	126	113
Boiler tubes	2 in. No. 11 steel	Ft.	.174	.154	.152	.152	.156	.161	.161	.158	.166	.165	.154	.158	.157	.159	.159	.159	.159	.159	100	103	91
Bar steel	Open-hearth	Cwt.b.	2.17	1.85	1.80	1.72	1.73	1.84	2.01	2.09	2.49	2.47	2.27	2.18	2.20	2.29	2.27	2.27	2.27	2.27	99	100	104
Steel	High-speed tool	Lb.b.	.57	.66	.52	.49	.52	.60	.61	.64	.78	.80	.77	.80	.73	.79	.77	.77	.77	.77	97	100	135
Steel	Boiler	Cwt.b.	2.33	2.01	1.86	1.73	1.82	2.10	2.05	2.12	2.53	2.40	2.25	2.20	2.24	2.33	2.25	2.25	2.25	2.25	96	100	96
Steel	Spring	Cwt.b.	2.84	2.62	2.42	2.18	2.23	2.31	2.36	2.54	3.03	2.94	2.81	2.88	2.97	2.90	2.89	2.89	2.89	2.89	99	102	101
Steel	24-gage black	Cwt.	3.25	2.90	2.65	2.69	2.68	2.72	2.81	2.82	3.28	3.13	2.80	2.91	2.84	2.53	2.31	2.31	2.43	2.35	92	84	72
Steel	No. 1	G.t.	17.35	16.61	15.37	14.85	15.74	18.30	18.59	19.47	22.13	20.97	19.85	20.97	21.99	20.30	21.11	21.55	21.55	21.40	105	107	123
Pig iron	Carbon steel	Lb.b.	...	...	...	...	...	...	...	...	...	...	...	.069	.081	.085	.084	.085	.085	.085	100	...	...
Crank pins	Loco. driving	N.t.	59.54	60.00	56.28	54.28	54.50	56.30	56.65	56.65	61.36	62.70	63.90	65.91	69.20	70.50	70.62	70.62	70.62	70.62	100	110	120
Brake shoes	Freight car	N.t.	37.55	35.42	35.12	32.70	33.40	35.00	36.00	37.77	48.27	48.50	48.50	50.10	54.70	57.00	55.71	55.71	55.71	55.71	98	115	148
Castings, gray iron	Green sand	Cwt.	4.12	4.12	4.00	3.82	3.82	3.90	3.87	4.14	4.25	4.15	4.10	4.20	4.16	4.69	4.46	4.52	4.52	4.50	96	109	109
Castings, malleable	8-5 lb. 25-50	Cwt.	8.68	8.27	7.68	7.59	7.42	8.99	8.29	8.42	10.38	10.50	10.60	11.31	12.60	12.56	12.95	12.95	13.00	12.97	103	122	150
Castings, steel	25-50 lb. under 50	Cwt.	8.32	8.46	7.73	7.37	7.25	8.52	8.49	8.52	11.91	12.50	12.10	12.33	13.30	13.84	13.90	13.90	13.90	13.90	100	115	167
Couplers, car	5 x 7 x 6½ AAR-E	Pr.	40.20	41.20	39.20	38.13	37.20	40.20	40.20	42.43	51.70	51.50	51.00	50.87	53.50	59.91	57.55	57.42	57.42	57.46	96	113	143
Wheels, car	33 in. chilled iron	Cwt.	...	...	...	...	1.35	1.40	1.40	1.40	1.50	1.24	1.27	1.40	1.44	1.43	1.58	1.58	1.58	1.58	110	124	...
Wheels, car	33 in. steel	Ea.	...	...	...	...	...	...	...	...	30.60	34.53	33.64	34.14	34.12	34.12	27.24	27.24	27.24	27.24	80	81	...
Axles, loco	Driving, carbon	Cwt.	4.84	4.29	4.75	4.55	4.56	4.90	5.06	5.26	5.94	5.80	5.83	5.73	5.96	5.91	6.17	6.17	6.29	6.21	105	107	128
Axles, car	5 x 9, rough turned	Cwt.	2.94	2.88	2.88	2.75	2.53	2.89	2.98	3.09	3.61	3.54	3.41	3.50	3.53	3.58	3.51	3.52	3.52	3.52	98	103	120
Tires, frt. loco	33 in. rough bored	Cwt.	5.84	6.22	6.03	5.86	5.55	5.67	5.97	5.83	6.21	6.20	6.12	6.08	6.84	6.55	6.24	6.24	6.24	6.24	95	102	107
Pipe	1 in. black steel	Ft.	.066	.067	.069	.063	.063	.066	.069	.062	.073	.074	.070	.067	.067	.065	.065	.065	.065	.065	100	93	99
Wire nails	Common	Cwt.	2.62	2.29	2.07	2.18	2.23	2.62	2.83	2.28	2.71	2.72	2.51	2.61	2.65	2.75	2.72	2.72	2.72	2.72	99	108	104
Pig lead	Virgin	Cwt.	6.95	5.64	4.42	3.53	4.17	4.04	4.44	4.87	6.34	5.12	5.30	5.33	6.25	6.85	6.93	7.27	6.91	7.04	102	133	101
Copper	Sheet, soft	Lb.	.27	.259	.181	.180	.169	.180	.211	.212	.252	.249	.245	.244	.246	.239	.237	.237	.237	.237	99	97	88
Journal bearings	AAR	Lb.	.167	.149	.10	.07	.081	.093	.096	.106	.139	.114	.122	.130	.141	.160	.166	.167	.168	.167	104	137	100
Wire, telephone	No. 9 bare, copper	Lb.	.195	.163	.115	.100	.113	.138	.141	.142	.185	.163	.165	.170	.175	.184	.180	.178	.180	.180	98	109	92
MISCELLANEOUS																							
Boiler lagging	1¼ x 6 x 36 mag.	Sq. ft.	.236	.160	.155	.156	.156	.157	.160	.154	.183	.182	.183	.183	.194	.194	.193	.193	.188	.191	98	104	81
Arch brick	Loco.	M.	41.73	41.85	39.29	34.70	37.20	44.58	45.26	45.64	50.42	49.75	49.20	46.74	43.00	43.00	45.10	45.10	45.10	45.10	105	92	108
Hose, air brake	1⅜ x 22	Ft.	.44	.45	.37	.33	.31	.39	.41	.40	.44	.38	.36	.34	.36	.42	.40	.40	.40	.40	95	111	91
Leather	Belting, 6 in. double	Ft.	1.39	1.39	1.23	1.27	1.17	1.32	1.31	1.32	1.30	1.26	1.24	1.30	1.35	1.40	1.30	1.30	1.30	1.30	93	105	93
Rope	¾ in. manila	Lb.	.199	.189	.153	.142	.127	.142	.130	.167	.180	.168	.154	.170	.170	.175	.173	.173	.173	.173	98	112	86
Wire rope	¾ in. 6 x 19 steel	Ft.	.144	.14	.143	.132	.137	.155	.161	.161	.174	.174	.163	.164	.148	.148	.159	.159	.159	.159	108	98	110
Rubber, red	⅛ in. sheet packing	Lb.	.247	.25	.225	.176	.172	.177	.167	.131	.141	.137	.135	.16	.148	.153	.160	.160	.160	.160	104	119	65
Oil	Switch lamp-tanks	Gal.	.087	.117	.062	.061	.051	.053	.052	.055	.055	.059	.055	.058	.061	.063	.065	.065	.065	.065	103	118	75
Oil	Car-tank lots	Gal.	.157	.163	.138	.127	.134	.135	.132	.141	.132	.144	.147	.142	.143	.147	.151	.151	.151	.151	103	103	96
Grease	Driving box	Lb.	.125	.131	.122	.118	.109	.104	.103	.102	.101	.100	.099	.100	.104	.116	.113	.113	.113	.113	97	114	90
Waste	Colored cotton	Lb.	.086	.084	.076	.051	.057	.065	.057	.073	.079	.058	.060	.06	.068	.079	.071	.072	.076	.073	92	122	85
Creosote oil	Gr. I AREA	Gal.	.145	.130	.115	.108	.093	.106	.116	.109	.123	.125	.130	.122	.123	.147	.155	.154	.154	.154	105	118	106
Welding electrodes	¼ in.	Cwt.	...	...	...	...	...	...	...	...	...	...	...	6.18	5.67	6.22	6.12	6.11	6.13	6.12	98	...	...
Glass	24 x 24 dsa	Box	5.76	5.84	4.80	4.71	5.18	4.59	5.03	4.81	5.60	5.25	5.06	5.00	5.03	5.40	4.89	4.87	4.84	4.86	90	96	84
Freight car paint	Mineral brown	Gal.	...	...	...	...	...	...	...	...	...	...	...	.95	.95	1.00	1.05	1.05	1.07	1.06	106	...	...
Linseed oil	Boiled	Lb.	.117	.120	.09	.068	.087	.095	.103	.104	.117	.10	.096	.097	.083	.094	.106	.119	.118	.114	122	119	98
White Lead	In oil—100 lb. keg	Lb.	.104	.106	.107	.088	.08	.081	.085	.085	.100	.086	.091	.097	.100	.105	.107	.109	.109	.108	103	119	103
Cement, Portland	In paper	Bbl.	1.87	1.76	1.42	1.42	1.80	1.95	2.16	2.02	1.98	1.98	1.99	1.97	1.97	2.10	2.05	2.05	2.05	2.05	98	103	109
Roofing		Roll	...	...	...	...	...	...	...	...	...	...	...	1.44	1.48	1.77	1.68	1.68	1.69	1.68	95	...	...
Soda ash	In paper	Cwt.	1.46	1.56	1.55	1.30	1.21	1.31	1.32	1.30	1.20	1.17	1.20	1.21	1.25	1.25	1.16	1.16	1.16	1.16	93	96	79
Hydrated lime	In paper	N.t.	11.96	9.73	9.53	9.49	8.35	8.50	8.48	8.59	9.47	9.60	8.46	8.05	8.25	8.25	8.53	8.92	8.92	8.79	106	103	73
Oxygen		100 c.f.	1.03	1.05	1.06	1.02	1.04	1.10	1.06	.94	.91	.90	.82	.86	.84	.88	.81	.81	.81	.81	92	99	79
Electric lamps	100 W., 110 V. frosted	Ea.	...	...	...	...	...	...	...	...	.161	.128	.116	.111	.137	.137	.113	.113	.113	.113	82	97	...
FOREST PRODUCTS																							
Car siding	1 x 6 x 9 B&B pine	M.ft.	...	...	...	21.83	36.75	45.00	37.29	47.22	47.11	39.83	40.91	44.50	57.00	62.50	69.00	69.33	65.66	67.99	109	166	...
Car sheathing	2 x 6 x 18 B&B fir	M.ft.	...	...	...	10.23	13.00	19.00	17.98	20.20	41.50	30.40	35.20	41.60	60.00	68.15	71.14	71.76	72.39	71.76	105	204	...
Car sills	6 x 6 com. rgh., fir	M.ft.	...	...	...	12.52	15.70	23.50	21.15	20.69	23.96	20.80	20.37	23.00	36.80	51.50	50.08	50.08	50.08	50.08	97	245	...
Stringers	16″ x 32′ or less, fir	M.ft.	...	...	...	...	.49	.53	.49	.53	23.23	19.61	19.76	23.80	34.10	49.00	59.96	61.78	62.50	61.41	125	310	...
Crossties	7 x 9 x 8′6″, fir	Ea.	.67	.80	.50	.50	.49	.53	.49	.53	.61	.53	.42	.52	...	1.00	.95	1.21	1.21	1.12	112	266	167
Crossties	7 x 9 x 8′6″, pine	Ea.	.67	.77	.65	.73	.64	.62	.57	.72	.77	.73	.75	.80	.95	1.10	1.12	1.20	1.20	1.17	106	156	175
Crossties	7 x 9 x 8′6″, oak	Ea.	.93	.92	.83	.75	.69	.69	.67	.82	.96	.82	.84	1.05	1.07	1.13	1.22	1.26	1.26	1.24	110	148	133
RAILROAD SCRAP (Sold)																							
Scrap	No. 1 wrought	N.t.	11.96	8.68	7.20	4.20	6.65	7.96	9.07	12.20	13.20	9.90	12.70	14.40	15.64	16.07	16.07	16.07	16.07	16.07	100	126	134
Scrap	No. 1 heavy melt	N.t.	12.82	10.62	7.33	5.34	7.32	8.55	9.29	12.32	14.44	11.70	13.83	15.93	18.60	19.00	18.00	18.00	18.00	18.00	95	130	140
Scrap	Rails	N.t.	14.49	12.55	10.05	7.18	8.10	9.22	9.89	13.21	15.97	14.00	15.95	18.78	20.80	21.00	19.88	19.88	19.88	19.88	95	125	137

*Compiled from special reports made by railroads to the *Railway Age*

Efficiency for Victory



petroleum and its products, was issued by the Petroleum Administrator. This regulation implemented the authority already conferred by Executive Order 9276, and provided that specific directions could be issued to override the provisions of any contract to which the person addressed was a party.

On February 12, the OPA authorized an increase of 5 cents a barrel in the price of crude oil from the Uniontown, Kentucky, pool. This action was followed on March 26 by the authorization of an increase of 25 cents a barrel in the maximum prices for heavy fuel oils and a graduated increase for heavy crudes from 20 specified fields in California, in order to supply the urgent Pacific Coast wartime demands of the Navy and war industries. These advances were extended, on April 12, to other heavy crude fields in the same state.

Maximum prices for crude oil produced in north and north central Texas; in Tillman County, Red River Bed, Oklahoma, were increased by 4 cents a barrel and in the Tinsley, Mississippi, field by 11.44 cents a barrel during the month of May. In line with its policy of making individual adjustments in crude oil ceilings, the OPA, on June 16, announced an increase of 7 cents a barrel in the maximum prices of Texas Panhandle crude oil. Ceilings on residual fuel oils and blends thereof with distillate fuel oils, except Diesel fuel oils, were reduced 12 to 18 cents a barrel in the state of Wyoming. Amendment No. 133 to RPS No. 88, effective November 8, provided that individual adjustments to ceiling prices of petroleum products, at all sales levels, might be made wherever local shortages warranted.

Overriding protests that it was encouraging inflation, the House of Representatives voted, on December 13, to order the OPA to boost crude oil prices by not less than 35 cents a barrel. The legislation directed OPA to fix crude prices not lower than 80 per cent of parity and not higher than 100 per cent. Based on current prices of about 60 per cent of parity, the proposed increase ranges from 35 cents to 74 cents a barrel and the bill, at this writing, is scheduled to go to the Senate.

That the situation with regard to petroleum products is closely affected by the war demands is evidenced in the fact that, with the close of 1943, more than 50,000,000 gallons of gasoline, fuel oils, lubricants and other petroleum prducts were being shipped to the fighting forces *every day*. One-third of all the gasoline produced in the United States is now required for military purposes, and it is expected that during 1944, military requirements will exceed 37 per cent of the total gasoline produced throughout the country east of the Rocky Mountains, and will exceed 52 per cent of the production in the Rocky Mountain and Pacific Coast regions. The terrific drain that War is imposing on our dwindling petroleum reserves requires more than 30 per cent of

*Compiled from special reports made by railroads to the *Railway Age*

our gasoline production, more than 25 per cent of all our light fuel oil, about 30 per cent of our production of heavy fuel oil, and about 25 per cent of our kerosene.

Governmental control of lumber prices has by no means proved to be a panacea, particularly insofar as railway items are concerned. Any advantages have been offset to a large degree by the inadequacy of the early control methods, the inability to enforce regulations, and the exceptionally heavy buying of lumber by government agencies, often on grade differentials that practically eliminated competitive railway procurement efforts. Moreover, Peter Stone, lumber price executive of the OPA, declared before a recent hearing of the Patman committee, that the federal government itself took the lead in stumpage inflation, because of the action of the Forest Service in boosting the price of stumpage. A brief review of governmental control during 1943 shows the many influencing factors that had such a large bearing on lumber prices.

Conservation Order M-234, issued by the WPB, empowered the Western Log and Lumber Administrator to direct the cutting of Douglas fir lumber and the allocation of logs as a means of increasing lumber production needed for the war program on the West Coast. On April 10, an over-all increase of 10 per cent in producers' ceilings for all grades of Douglas fir plywood was authorized for similar reasons. An increase in the ceiling prices of four grades of Douglas fir boards came on April 17. Ceiling prices on Northern hemlock boards and dimension lumber produced in Wisconsin were readjusted upward to widen the differential between boards and dimension lumber, while compensatory reductions were made in the prices of dimension material. Producers of Western pine lumber in California, Idaho, Montana, Oregon and Washington were authorized to increase ceiling prices $3 per M. b. m. for six species, in twelve grades and sizes, on June 2.

Complete governmental control over the production and distribution of softwood plywood in Oregon, Washington and California was established by Limitation Order L-150, as amended June 9. Maple, birch and beech flooring were provided with specific dollars-and-cents maximum prices at the producers' level on July 19, and represented an increase of approximately seven per cent. Western poles and piling were given specific maximum prices, effective August 2, under Amendment No. 1 to RMPR-284; the new ceilings for piles represented a slight decrease from March, 1942, prices and the new pole prices were slightly higher compared with March, 1942. On August 10, the OPA authorized producers of Northern hardwood to increase basic mill prices 10 per cent, pending the detailed revision of ceilings.

In a broad move designed to increase the production of Southern pine lumber by small mills, the OPA, on August 25, established specific additions which wholesalers and commission men were allowed to add to ceiling prices, as compensation for their services in channeling the mills' output through markets into the hands of users. Ceiling increases of approximately 14.5 per cent were provided for Northern hardwood and softwood lumber on October 15. On the same date, specific ceiling prices representing increases of 10 per cent for railway grain doors and 33 per cent for coal doors, were established for these products. A control-tightening action designed to halt the sales of Southern pine lumber at prices in excess of ceilings, through the illegal device of up-grading, was introduced through Amendment 8 to RMPR 19, effective November 15. On November 17, increases ranging from $1 to $11 per M. b. m. were announced in the ceiling prices of standard grades of Appalachian hardwood lumber. Sellers of poles and piling produced in the western states were authorized to add a mark-up of 25 per cent to basic minimum prices for both items when sold in less-than-carload lots.

Effective November 27, sellers of poles and piling produced in western United States were authorized to add a mark-up of 25 per cent, rather than 10 per cent, in the sales of the two items in less-than-carload lots. Designed to facilitate production in order to meet the heavy demand for light construction types of Douglas fir, Amendment No. 4 to RMPR-26, effective December 6, increased maximum prices for Douglas fir dimension and boards by 50 cents to $1.50 per M. b. m.; at the same time, timbers were reduced by $1.50 to $2 per M. b. m. On December 4, producers of larch-fir, inland red cedar, and incense cedar in 12 western states were authorized to add $3 per M. b. m. to the basic maximum prices of 12 specific grades. At the same time, producers were assured of the continuance of the $3-addition previously granted on the same 12 grades of ponderosa, Idaho, sugar and lodgepole pines, white fir and spruce. A 16-per-cent increase in the ceiling prices of standard grades of hardwood lumber produced in Indiana, Ohio, northern and central Illinois and northern and central Kentucky was authorized by the OPA on December 11.

Cross and Switch Tie Prices

Never has the close inter-relation of the lumber and railway tie industries been drawn to the attention of railway buyers more forcefully than during the last year. Notwithstanding the fact that the scarcity of manpower is and has been the Number One problem of the tie industry, and notwithstanding substantial increases in tie prices since the beginning of World War II, the persistent lag in tie production has been due largely to the lack of adequate correlation of governmental price controls established for lumber and cross and switch ties.

While the ceiling prices for ties, established by OPA's MPR-216, provided substantial increases over preceding regulation prices, subsequent increases in lumber ceilings, while the ceilings for ties remained unchanged, widened the spread and restricted tie production to a greater degree. With ceiling prices for oak freight car stock generally $8 to $10 above switch tie ceilings, mill production switched to the more desirable items. The

Average Cost of Cross Ties Laid in Replacement—Class I Railroads*

(Excludes Labor)

	Untreated				Treated			
	United States	Eastern Dist.	Southern Dist.	Western Dist.	United States	Eastern Dist.	Southern Dist.	Western Dist
1920	$1.20	$1.36	$1.29	$ .93	$1.35	$1.48	$1.34	$1.26
1921	1.34	1.76	1.21	1.08	1.64	2.10	1.55	1.39
1922	1.03	1.46	.87	.88	1.58	1.99	1.42	1.33
1923	1.05	1.38	1.02	.90	1.49	1.87	1.23	1.26
1924	1.07	1.58	1.07	.91	1.56	1.91	1.44	1.35
1925	.99	1.25	1.02	.85	1.49	1.92	1.39	1.29
1926	.98	1.23	1.04	.81	1.46	1.83	1.37	1.25
1927	.99	1.26	1.04	.82	1.48	1.89	1.40	1.28
1928	.95	1.21	.97	.83	1.49	1.89	1.44	1.29
1929	.93	1.13	.97	.81	1.46	1.88	1.35	1.27
1930	.92	1.12	.95	.82	1.43	1.81	1.34	1.26
1931	.84	1.00	.87	.77	1.39	1.76	1.30	1.25
1932	.70	.92	.70	.66	1.32	1.66	1.24	1.18
1933	.65	1.03	.63	.57	1.22	1.56	1.09	1.09
1934	.69	.77	.77	.57	1.18	1.50	1.07	1.06
1935	.68	.77	.72	.60	1.17	1.45	1.06	1.07
1936	.68	.72	.76	.59	1.18	1.42	1.10	1.08
1937	.77	.80	.87	.67	1.22	1.50	1.17	1.10
1938	.76	.75	.89	.65	1.27	1.54	1.26	1.16
1939	.75	.77	.86	.66	1.28	1.52	1.29	1.16
1940	.79	.75	.90	.68	1.29	1.54	1.29	1.16
1941	.82	.82	.95	.71	1.31	1.55	1.32	1.18
1942	.96	1.07	1.10	.87	1.46	1.74	1.50	1.30

* Source: I. C. C.

cross tie situation in the central, eastern and southern sections of the country presents much the same problems. The outlook for 1944 indicates higher ceiling prices for both items.

Prices did not influence the procurement of Douglas fir cross and switch ties to any appreciable extent, although top ceiling prices prevailed generally throughout 1943. General production fell short of actual railway requirements by reason of large government purchases for war projects, as well as the fact that many mills, normally considered as tie producers, swung to the production of more profitable plank and other items. While government requirements for ties were reduced substantially during the last quarter of 1943, indications point to large government demands in 1944, particularly for Lend-Lease requirements.

Average Costs of Fuel Consumed—10 Months 1943*

	Coal				
	Less Frt. Per Ton Dollars	With Frt. Per Ton Dollars	Fuel Oil Per Bbl. Dollars	Gaso. Per Gal. Cents	Diesel Oil Per Gal. Cents
Line Haul Carriers					
Akron, Canton & Youngstown	2.59	4.06	3.22	15.58	6.44
Alabama Great Southern	2.83	3.18	...	18.89	5.03
Alton R. R.	2.45	2.70	2.06	8.72	5.23
Ann Arbor	2.57	4.59	2.61	11.67	4.76
Atchison, Topeka & Santa Fe	3.15	3.32	1.03	7.19	3.89
Atlanta & West Point	2.75	4.34	...	...	...
Atlanta, Birmingham & Coast	2.88	3.51	...	...	...
Atlantic Coast Line	2.57	4.14	1.73	...	6.36
Baltimore & Ohio	2.42	2.52	2.16	11.97	6.09
Bangor & Aroostook	...	6.49	...	...	...
Bessemer & Lake Erie	2.74	3.16	2.98	14.67	9.50
Boston & Albany	2.65	5.49	4.01	14.02	7.29
Boston & Maine	2.70	5.52	2.93	12.29	7.39
Burlington-Rock Island	...	...	1.10	...	.04
Cambria & Indiana	2.71	...	...	...	...
Canadian National in N. E.	2.49	4.92	...	19.33	...
Canadian Pacific in Vt.	2.96	6.64	...	17.78	...
Central of Georgia	3.05	3.27	1.83	10.32	6.15
Central R. R. of N. J.	2.58	4.54	3.06	13.45	7.05
Central Vermont	2.34	5.43	3.38	14.40	7.90
Charleston & Western Carolina	2.51	4.16	...	...	...
Chesapeake & Ohio	2.68	2.75	2.24	10.67	...
Chicago & Eastern Illinois	2.25	2.39	2.52	10.11	6.20
Chicago & Illinois Midland	2.07	2.34	2.54	12.18	...
Chicago & North Western	1.57	1.94	.93	9.68	5.38
Chicago, Burl. & Quincy	1.79	1.96	.88	7.75	4.53
Chicago Great Western	2.13	3.03	1.32	7.78	4.61
Chicago, Ind. & Louisville	2.25	2.42	...	...	5.55
Chicago, Mil. S. P. & P.	2.35	2.63	1.22	8.67	4.71
Chicago, R. I. & Pac.	2.29	2.70	.97	10.67	4.31
Chicago, St. P. Minn. & Om.	...	...	...	...	...
Cin., New Orleans & Tex. Pac.	2.48	2.96	...	...	5.49
Clinchfield	2.49	2.57	1.87	7.25	...
Colorado & Southern	3.30	3.39	.82	7.35	4.84
Colorado & Wyoming	3.63	5.18	...	.15	.06
Columbus & Greenville	1.90	3.39	...	9.02	...
Delaware & Hudson	2.59	4.46	3.01	...	...
Delaware, Lack. & Western	2.53	4.16	3.16	...	7.37
Denver & Rio Grande Western	2.89	2.93	2.36	12.41	6.08
Denver & Salt Lake	2.17	2.15	...	9.22	5.03
Detroit & Mackinac	2.47	5.02	2.13	.06	...
Detroit & Toledo Shore Line	2.44	4.18	3.28	...	...
Detroit, Toledo & Ironton	2.85	3.85	3.18	15.15	5.66
Duluth, Miss. & Iron Range	2.79	5.27	3.06	10.73	...
Duluth, S. S. & Atlantic	2.54	5.25	1.30	13.23	...
Duluth, Winnipeg & Pac.	...	5.53	3.53	15.01	...
Elgin, Joliet & Eastern	2.23	2.38	2.08	11.53	5.15
Erie	2.68	3.48	3.01	10.02	6.81
Florida East Coast	...	...	1.76	...	6.13
Fort Worth & Denver City	3.37	4.43	1.08	6.42	4.05
Georgia	2.55	4.56	...	20.00	...
Georgia & Florida	2.65	4.48	...	22.64	...
G. Southern & Florida	2.52	4.71	...	18.99	5.10
Grand Trunk Western	2.25	3.81	2.26	14.38	6.35
Great Northern	1.52	4.06	.96	8.55	4.43
Green Bay & Western	...	5.05	...	...	6.28
Gulf & Ship Island	2.08	4.24	1.92	10.28	...
Gulf Coast & Subsidiaries	...	...	.99	10.82	4.68
Gulf, Mobile & Ohio	2.05	2.27	...	8.45	4.85
Illinois Central	2.19	2.59	1.76	14.09	4.81
Illinois Terminal	2.12	2.20	1.27	13.88	8.21
International-Great Nor.	...	...	...	...	3.93
International of Maine	2.77	6.41	...	18.94	12.78
Kansas City Southern	2.55	2.88	.96	...	4.22
Kansas, Oklahoma & Gulf	2.93	3.44	1.42	12.92	...
Lake Superior & Ishpeming	...	5.29	...	...	...
Lehigh & Hudson River	2.28	5.08	...	15.28	...
Lehigh & New England	2.41	4.25	2.31	17.04	...
Lehigh Valley	2.44	4.41	2.88	11.26	7.34
Long Island	2.66	5.26	1.96	14.39	7.37
Louisville & Arkansas	2.94	...	1.07	17.36	4.11
Louisville & Nashville	2.31	2.45	2.10	17.90	4.72
Maine Central	3.07	6.01	3.02	13.32	8.62
Midland Valley	2.91	3.07	1.25	12.17	...
Minneapolis & St. Louis	2.30	2.50	1.33	8.25	4.58
Minn., St. P. & S. S. M.	1.87	4.36	1.75	9.15	5.65
Mississippi Central	1.98	3.94	...	12.74	...
Missouri & Arkansas	2.50	3.17	...	9.18	3.54
Missouri-Illinois	1.98	2.07	...	7.71	...
Missouri-Kansas-Texas	2.69	2.81	1.03	7.82	...
Missouri Pacific	2.17	2.35	1.01	7.48	3.77
Monongahela	2.32	2.53	4.60	17.49	...
Montour	2.61	2.58	...	...	...
Nashville, Chatt. & St. L.	2.50	3.23	1.26	6.70	3.94
Nevada Northern	2.81	5.78	...	22.00	...
New Orleans & Northeastern	2.85	4.49	1.54	17.44	4.75
New York Central	2.51	2.95	1.96	12.35	6.29
New York, Chicago & St. L.	2.61	4.25	2.20	...	7.92
New York Connecting	...	...	1.80	...	...
New York, New Haven & Hart.	2.60	5.05	1.87	13.82	7.00
New York, Sus. & Western	2.66	5.17	...	11.72	7.02
Norfolk & Western	2.51	2.54	2.04	8.53	...
Norfolk Southern	2.57	4.48	...	11.02	...
Northern Pacific	1.54	2.13	1.22	11.50	5.66
Northwestern Pacific	3.39	...	1.10	9.13	5.77
Oklahoma City-Ada-Atoka	...	3.74	1.50	...	...
Pennsylvania	2.53	2.88	2.36	14.84	7.88
Penn. Reading Seashore	2.49	5.40	4.17	14.80	...
Pere Marquette	2.65	4.75	2.26	11.51	6.42
Pittsburgh & Lake Erie	2.52	2.88	2.66	17.62	...
Pittsburg & Shawmut	2.65	2.71	3.94	16.32	...
Pittsburgh & West Virginia	2.74	2.79	...	...	.08
Pittsburg, Shawmut & No.	2.73	2.72	...	...	...
Reading	2.38	3.94	3.15	15.50	6.81
Richmond, Fred. & Potomac	2.61	5.17	...	11.44	7.25
Rutland	2.49	5.32	3.15	...	...
St. Louis-San Francisco	2.48	2.77	1.00	12.56	4.42
St. Louis, San Fran. & Tex.	...	...	1.04	12.71	...
St. Louis Southwestern	2.07	3.08	1.09	7.47	3.84
Seaboard Air Line	2.61	4.02	1.62	17.37	6.31
Southern	2.40	2.48	1.78	18.99	5.59
Southern Pac.-Pac. Lines	3.32	3.81	1.11	12.43	4.13
Spokane International	2.83	4.26	...	...	...
Spokane, Port. & Seattle	3.69	5.85	1.22	11.23	5.14
Staten Island Rapid Trans.	2.78	5.30	...	...	...
Tennessee Central	2.39	2.53	2.67	...	6.58
Texas & New Orleans	2.98	...	.98	9.62	4.05
Texas & Pacific	...	...	1.11	...	...
Texas Mexican	...	...	1.37	...	3.26
Toledo, Peoria & Western	2.31	2.55	3.14	10.81	5.29
Union Pacific	2.30	2.54	1.33	9.34	4.26
Utah	2.41	2.58	2.50	19.65	...
Virginian	2.32	2.73	...	...	...
Wabash	2.22	2.61	2.15	10.24	5.08
Western Maryland	2.65	2.91	3.06	15.97	7.62
Western Pacific	2.70	4.08	.95	9.77	5.14
Wheeling & Lake Erie	2.43	2.51	2.14	13.16	5.60
Switching and Terminal Companies					
Aliquippa & Southern	...	3.36	...	...	...
Alton & Southern	1.99	2.94	...	...	...
Baltimore & Ohio	2.29	4.43	...	...	5.71
Belt Ry. of Chicago	2.16	3.67	4.17	.13	.05
Birmingham Southern	...	...	...	...	4.57
Brooklyn Eastern Dist. Ter.	...	...	1.86	...	...
Chicago & Western Indiana	1.95	3.72	2.21	.13	...
Chicago River & Indiana	2.09	3.82	...	...	5.25
Cincinnati Union Terminal	2.71	4.51	...	...	...
Conemaugh & Black Lick	3.28	3.28	...	...	...
Detroit Terminal	2.43	4.64	...	16.13	...
Houston Belt & Terminal	...	...	1.05	...	.04
Indiana Harbor Belt	2.24	3.81	2.16	...	...
Indianapolis Union	2.27	3.59	2.63	...	...
Kansas City Terminal	2.15	3.78	1.04	...	.05
Kentucky & Indiana Term.	2.01	3.42	...	...	.05
Lake Erie & Eastern	...	4.38	...	...	...
Lake Terminal	2.65	4.51	...	...	...
Minnesota Transfer	...	6.81	...	...	6.81
Monongahela Connecting	3.40	4.76	...	...	7.69
New Orleans Terminal	2.86	5.35	...	...	4.07
Newburgh & South Shore	2.50	4.48	...	12.56	6.22
No. Pac. Term. of Ore.	...	...	1.24	...	.05
Ogden Union	2.71	4.79	1.30	18.53	...
Peoria & Pekin Union	2.01	2.57	...	16.50	5.13
Portland Terminal	2.60	5.96	3.70	14.16	7.00
St. Paul Union Depot	...	7.34	...	9.18	6.72
Terminal R.R. Asso. of St. L.	2.30	3.13	2.14	...	.05
Tex. Pac.-Mo. Pac. of N. O.	...	...	1.10	.19	.04
Toledo Terminal	...	4.58	...	...	...
Union (Penna.)	3.08	3.20	3.48	...	7.44
Washington Terminal	2.71	5.41	...	...	...

* As reported to the I. C. C.

Locomotive Orders Were Limited by W. P. B. Control of Deliveries

Steam orders were subject to board's authorization of building and Diesels to delivery directives

By Arthur J. McGinnis

Associate Editor

AS reported to the *Railway Age,* during 1943 the railroads placed orders for 956 locomotives for domestic service, of which 435 were steam and 521 Diesel-electric. In addition, orders for seven steam and 91 Diesel locomotives were reported placed by industrial companies and private car lines.

Compilation of a detailed list of orders this year was again complicated by the unusual conditions resulting from governmental control over the production and distribution of motive power.

War Production Board authorization of an order for steam locomotives is necessary before building can begin. This tended to limit orders to authorizations. Only five of the 435 railroad steam units listed in detail in the appended tables were reported unauthorized. (These five are marked with an asterisk.) Of the remainder, the scheduled dates of deliveries are set forth therein as reported and can be considered as tentative only and subject to change by the WPB.

434 Locomotives Delivered to Railroads

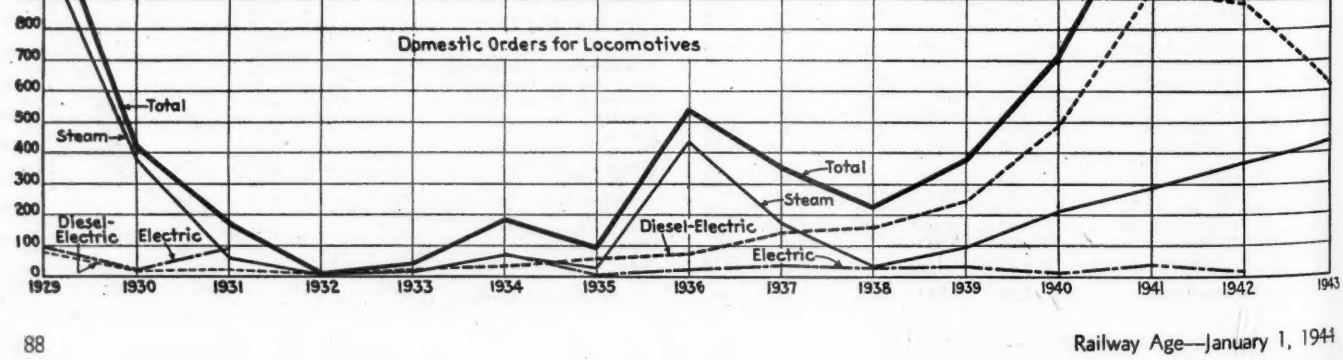
About 434 steam locomotives were delivered to the railroads during the year, of which number, about 79 represent locomotives ordered this year. Most of this year's railroad steam power orders were placed during the first six months, 368 of the 435 units ordered, and as the backlog again built up, new buying stopped. Only 67 steam locomotives were authorized and ordered during the final half.

Steam locomotive purchases during the year were made chiefly for freight service, 333 of the 435 railroad engines ordered being so classified, with 61 intended for freight and passenger service and 41 for switching service. Orders were divided, 101 to railroad shops, and 334 to contract builders. Among the larger orders reported placed during the year were 25 of 2-10-4 wheel arrangement and ten 4-8-4 wheel arrangement by the Atchison, Topeka & Santa Fe; 40 2-8-4 type and ten 2-6-6-6 type by the Chesapeake & Ohio; 25 0-8-0 switches (for the Pittsburgh & Lake Erie) and 25 4-8-2 type engines by the New York Central; 30 2-8-4

Table I—Locomotive Orders, 1929-1943

Year	Domestic				U. S. Export	Canadian (Inc. Export)
	Steam	Diesel	Electric	Total		
1943	442	612	..	1,054	45	241
1942	363	894	12	1,269	32	53
1941	293	937	38	1,268	85	79
1940	207	492	13	712	85	3
1939	119	249	32	400	40	56
1938	36	160	29	225	24	35
1937	173	145	36	354	56	57
1936	435	77	24	536	22	1
1935	30	60	7	97	15	27
1934	72	37	76	185	17	..
1933	17	25	..	42	7	..
1932	5	7	..	12	1	1
1931	62	21	91	174	28	2
1930	382	18	21	421	20	95
1929	1,055	80	95	1,230	106	77

Note:—The totals of domestic and U. S. export orders for years 1941-1943, exclude U. S. Government purchases. Domestic orders placed in 1941 and 1942 are adjusted to eliminate orders subsequently cancelled due to WPB restrictions on building. In certain instances, domestic orders placed in December are not reported until following year; statistics for years 1929-1942 are adjusted to eliminate this overlap.



type by the New York, Chicago & St. Louis; and 20 4-6-6-4 type, ten 4-8-4 and five 4-8-8-4 type by the Union Pacific. The Pennsylvania placed orders for 85 2-10-4 wheel arrangement with the railroad's own shops and the Norfolk & Western ordered ten 2-6-6-4 type and six 4-8-4 type from its shops.

Diesel-Building Regulations

Diesel locomotives are built for stock and blanket authorizations covering a number of locomotives granted to builders. During the year, with certain exceptions plants of the American Locomotive Company and Baldwin Locomotive Works were restricted to the building of Diesel locomotives of 600 or 1000 hp. and the Electro-Motive division of the General Motors Corporation to the building of Diesel freight engines of 5,400 hp. Excepting for experimental purposes, Diesel passenger locomotive building stopped.

Toward the close of each month, the War Production Board, transportation section, issues a directive to the builders respecting deliveries of the 600 and 1,000 hp. engines for the succeeding month. Directives covering deliveries of the freight locomotives are made further in advance, about four times a year. Allocations are based chiefly on the recommendations of the Office of Defense Transportation, claimant agency for transportation under the WPB's controlled materials plan, as to deliveries of locomotives under production.

In compiling the appended detailed statement of Diesel locomotive orders, instances were reported of locomotives of 600 and 1,000 h.p. ordered from one builder being released for delivery from the stock of the other. Nor were O. D. T. allocations of Diesel power necessarily made according to seniority of order. There was no way of determining when a number of locomotives of various sizes were allocated to a railroad whether these were locomotives ordered in 1943 or in a previous year and "frozen" since that time.

Table II—Domestic Diesel Locomotive Orders by Horsepower and Purchaser

	Railroads		Industrial Cos. and Private Car Lines		Total	
Horsepower	1943	1942	1943	1942	1943	1942
6,000	3	3	..	..	3	3
5,400	70	103	..	..	70	103
4,000	38	3	..	..	38	3
2,000	22	23	..	..	22	23
1,000	331	319	10	15	341	334
800	...	...	1	..	1	...
600 or 660	31	98	5	9	36	107
Less than 600	26	26	75	295	101	321
Total	521	575	91	319	612	894

Note:—1942 totals are adjusted to eliminate orders subsequently cancelled in 1943 due to WPB restrictions on building.

Duplicate Orders May Be Listed

Pending government action on their application for Diesel power, several railroads reported placing duplicate orders contingently with all builders. Effort has been made, within the time available, to eliminate these duplications from the appended list and, for comparative purposes, to adjust 1941 and 1942 totals for subsequent cancellations. In certain instances, in the absence of definite information contrariwise, apparently duplicate orders were necessarily listed with both builders. The date of delivery has been shown in the tables for locomotives ordered and delivered during the year, but, to avoid confusion and errors, tentative delivery schedules for Diesel locomotives on order but undelivered at the year-end have been omitted.

A summary analysis of orders placed for Diesel locomotives by horsepower and purchaser is presented in Table II. Of the 521 Diesels ordered by the carriers during the year, about 100 were delivered. Total Diesel locomotive deliveries to all purchasers were reported to number 556.

Orders placed in the United States during 1943 for export, exclusive of U. S. government and lend-lease orders, comprised 36 steam locomotives, five electric and four Diesel-electric engines. Orders reported placed in Canada totaled 241 steam locomotives, including 20 4-8-2 types for the Canadian National and 45 4-6-2 type and 25 2-8-2 type for the Canadian Pacific plus 145 2-8-2 type for export to the Indian State Railways and six 4-8-0 type for export to the Jamaica Government Railway.

Total of 1012 Engines Were Built

Locomotive deliveries reported during the year, exclusive of engines built for the government and lend-lease, totaled 1,012 units for domestic service, of which 434 were steam, 556 Diesel and 22 electric. Domestic steam deliveries were divided, 148 by railroad shops and 286 by contract builders. There were 58 locomotives built in the United States for export during the year, comprising 22 steam, 19 Diesel and 17 electric engines, and 94 built in Canada, including 55 for service in Canada and 39 for export.

The appended tables contain a detailed statement of domestic orders for new locomotives placed during 1942 by railroads, industrial companies and private car lines; also, those placed for export and in Canada. The *Railway Age* is not permitted to publish, at this time, the number of locomotives ordered or built for U. S. government departments, either for domestic service or for export, and, for comparative purposes, government orders have also been excluded from 1941 and 1942 totals in Tables I and II and from 1942 totals in Table III.

Table III—Locomotives Built, 1929-1943

Year	Domestic	U. S. Export	Total U. S.	Canadian
1943	1,012	58	1,070	94
1942	936	11	947	71
1941	1,047	57	1,104	3
1940	435	66	501	59
1939	338	16	354	1
1938	272	28	300	46
1937	526	44	570	45
1936	157	22	179	23
1935	184	17	201	4
1934	91	19	110	..
1933	57	6	63	..
1932	102	18	120	3
1931	181	17	198	24
1930	972	51	1,023	111
1929	926	139	1,065	96

Note:—1943 and 1942 domestic and U. S. export totals exclude locomotives built for the U. S. Government and lend-lease.

The list of orders was compiled from information furnished to the *Railway Age* by the railroads, private car lines, and other purchasers of locomotives in response to requests for this information. Data thus compiled were then checked against lists of orders supplied by locomotive builders. In some instances, particularly in respect of orders placed by industrial companies with the General Electric Company and other builders with orders from this source, because of the early publication date of this compilation, certain orders placed in December

may be omitted. While the information is believed to be reliable, the *Railway Age* does not guarantee the statistical accuracy or completeness of the list or totals drawn therefrom. However, it is believed that such omissions as occur will be found to be relatively small and unimportant, and will not vitiate the value of the figures, particularly with respect to comparisons with preceding years.

Because certain of the locomotives ordered in 1943 and still on order from earlier placements may not be released for building and may be cancelled in 1944, and because of the difficulties in compiling a list of orders, heretofore described, because of government supervision of building and deliveries, a comparison of the volume of locomotives ordered in 1943 with the number ordered in preceding years is not of the usual value, although this comparison is set forth in Tables I and II for such significance as may be noted.

Steam Locomotive Orders in 1943

For Service in the United States

Purchaser	No.	Type	Service	Weight	Tractive force	Cylinders	Date of Order	Date of Delivery	Builder
Alaska	6	2-8-0	Pass. & Frt.	161,000	31,500	19 x 26	June	October	Baldwin
Atchison, Topeka & Santa Fe.	10	4-8-4	Freight	510,150	66,000	28 x 32	February	Jan. '44	Baldwin
	20	2-10-4	Freight	555,000	93,000	30 x 32	May	Mar.-Apr. '44	Baldwin
	5	2-10-4	Freight	555,000	93,000	30 x 32	July	April '44	Baldwin
Atlanta & West Point & Western of Alabama	2	2-8-2	Freight	325,000	63,000	27 x 32	August	.....	Baldwin
Baltimore & Ohio	20	2-8-8-4	Freight	646,000	115,000	24 x 32 (4 cyl.)	February	Dec.-Feb. '44	Baldwin
Bessmer & Lake Erie	5	2-10-4‡	Freight	519,740	96,700	31 x 32	February	Nov.-Jan. '44	Baldwin
Carnegie-Illinois Steel Co.	3	0-4-0	Sw.	120,000	26,000	18 x 22	May	.....	H. K. Porter
	3	0-4-0	Sw.	70,000	13,930	13 x 16	May	.....	H. K. Porter
Chesapeake & Ohio	10	2-6-6-6	Freight	695,000	110,200	22½x33 (4 cyl.)	May	Apr.-June '44	Lima
	40	2-8-4	Freight	465,000	83,750	26 x 34	February	Nov.-Apr. '44	American
Chicago, Milwaukee, St. Paul & Pacific	10	4-8-4	Freight	475,000	62,000	26 x 32	July	June '44	American
Chicago, Rock Island & Pacific	10	4-8-4	Freight	478,000	67,088	26 x 32	June	Jan.-Mar. '44	American
Lehigh Valley	10♦	4-8-4	Freight	445,000	66,500	26 x 32	January	November	American
Louisville & Nashville	6	2-8-4	Freight	438,500	79,390†	25 x 32	June	.....	Baldwin
Maryland Slag Co.	1	0-6-0	Sw.	132,000	27,790	18 x 24	July	.....	H. K. Porter
Midland Valley	2	2-8-2	Freight	292,000	54,800	26 x 30	August	.....	Baldwin
Minneapolis & St. Louis	5	2-6-6-4	Freight	490,000	82,300	22 x 30 (4 cyl.)	August	*	Baldwin
New York Cent al	25	4-8-2	Pass. & Frt.	399,300	59,900	26 x 30	January	December	Lima
	10	.....	Tender	173,700	.....	.....	May	Oct. '44	Company Shops
(Pittsburg & Lake Erie)	25	0-8-0	Sw.	234,000	51,000	25 x 28	May	Mar. '44	American
New York, Chicago & St. Louis	15	2-8-4	Freight	440,700	64,100	25 x 34	February	Dec.-Feb. '44	Lima
	15	2-8-4	Freight	440,700	64,100	25 x 34	June	June-Aug. '44	Lima
Norfolk & Western	6	4-8-4	Freight	494,000	73,300	27 x 32	March	Oct.-Dec.	Company Shops
	10	2-6-6-4	Freight	573,000	114,000	24 x 30 (4 cyl.)	June	Feb.-June '44	Company Shops
Northern Pacific	8	4-6-6-4	Freight	644,000	106,890	23 x 42 (4 cyl.)	May	May '44	American
Pennsylvania	30‡	2-10-4	Freight	577,975	110,100	29 x 34	Dec. '42	July	Company Shops
	20	2-10-4	Freight	577,975	110,100	29 x 34	January	September	Company Shops
	25	2-10-4	Freight	575,880	110,100	29 x 34	March	Jan. '44	Company Shops
	40	2-10-4	Freight	575,880	110,100	29 x 34	June	.....	Company Shops
Pere Marquette	7	2-8-4	Freight	442,800	69,350	26 x 34	April	Feb. '44	Lima
	5	2-8-4	Freight	442,800	83,450†	26 x 34	April	Mar. '44	Lima
Southern Pacific	20	4-8-8-2	Pass. & Frt.	657,900	124,300	24 x 32 (4 cyl.)	March	Oct.-Dec.	Baldwin
Spokane, Portland & Seattle	2	4-6-6-4	Freight	644,000	106,890	23 x 32 (4 cyl.)	July	April '44	American
Union	10	0-6-0	Sw.	175,000	45,100	22 x 28	February	Jan. '44	American
Union Pacific	20	4-6-6-4	Freight	634,000	97,350	21 x 32 (4 cyl.)	October	July-Sept. '44	American
	10	4-8-4	Pass.	483,000	63,800	25 x 32	October	Nov. '44	American
	5	4-8-8-4	Freight	762,000	135,375	23¾x32 (4 cyl.)	October	Oct. '44	American
Wheeling & Lake Erie	6	0-6-0	Sw.	167,000	41,200	21 x 28	August	May '44	American

United States—Export

Purchaser	No.	Type	Service	Weight	Tractive force	Cylinders	Date of Order	Date of Delivery	Builder
Central Ry. of Peru	2	2-8-0	Freight	164,000	31,500	19 x 26	June	Sept.-Oct.	American
Companhia Vale do Rio Doce (Brazil)	18	2-8-2	Freight	140,000	29,200	19 x 20	Feb.-Mar.	Sept.-Nov.	Baldwin
F. C. de Antioquia (Colombia)	4	2-8-2	Pass. & Frt.	135,000	26,400	17 x 22	November	*	Baldwin
Guayaquil & Quito (Ecuador)	1	2-8-0	Freight	123,000	32,150	19 x 22	May	.....	Baldwin
	1	2-8-0	Freight	123,000	32,150	19 x 22	October	.....	Baldwin
National Railways of Colombia	6	4-8-2	Freight	184,500	30,300	18½ x 22	October	*	Baldwin
Newfoundland	4	2-8-2	Freight	155,000	29,000	18 x 24	July	July '44	American

Canada—Including Export

Purchaser	No.	Type	Service	Weight	Tractive force	Cylinders	Date of Order	Date of Delivery	Builder
Canadian National	20	4-8-2	Freight	359,000	.....	20 x 30	October	1944	Montreal
Canadian Pacific	45	4-6-2	Pass. & Frt.	323,500	45,000	22 x 30	May	June '44	Canadian
	25	2-8-2	Freight	334,000	.....	22 x 32	May	1944	Montreal
Indian State Railways	75	2-8-2	Freight	322,000	35,000	21 x 28	March	October	Canadian
	70	2-8-2	Freight	322,000	35,000	21 x 28	March	Nov.-May '44	Montreal
Jamaica Government Railway	6	4-8-0	Freight	151,000	32,870	19 x 26	August	May '44	Canadian

♦ Previously reported in last year's listings as ordered in November, 1942 with builder to be determined.
† Tractive force including booster.
* Locomotives reported unauthorized for building by War Production Board.
‡ 1942 totals have been adjusted to include these locomotives which were not reported last year.

Diesel-Electric, Gas-Electric and Other Internal-Combustion Locomotives

Railroad Orders—For Service in the United States

Purchaser	No.	Wheel arrangement	Service	Type	Weight	Horsepower	Date of Order	Date of Delivery	Builder Electrical Equipment-Locomotive Builder-Engine Builder
Alaska	2	B-B	Pass., Frt. & Sw.	Diesel-Elec.	230,000	1,000	July	.....	G. E.-American
Alton	10	B-B	Sw.	Diesel-Elec.	230,000	1,000	July	.....	G. E-American
Atchison, Topeka & Santa Fe.	10	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	May	.....	Electro-Motive
	20	2(A1A-A1A)	Road	Diesel-Elec.	626,600	4,000	September	.....	Electro-Motive
	18	B-B	Sw.	Diesel-Elec.	240,000	1,000	September	.....	West.-Baldwin
	6	B-B	Sw.	Diesel-Elec.	88,000	380	August	December	G. E.-Cater.
	5	B-B	Sw.	Diesel-Elec.	230,000	1,000	September	.....	G. E.-American

Purchaser	No.	Wheel arrangement	Service	Type	Weight	Horsepower	Date of Order	Date of Delivery	Builder Electrical Equipment-Locomotive Builder-Engine Builder
Atlanta & St. Andrews Bay	5‡	B-B	Rd. & Sw.	Diesel-Elec.	230,000	1,000	Oct. '42	Apr.-Nov.	G. E.-American
Atlantic & East Carolina	1	B-B	Frt. & Sw.	Diesel-Elec.	88,000	380	May	November	C. E.-Cater.
Atlantic Coast Line	3	3(A1A-A1A)	Road	Diesel-Elec.	939,900	6,000	October	.....	Electro-Motive
	3	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	June	.....	Electro-Motive
	3	B-B	Sw.	Diesel-Elec.	240,000	1,000	July	.....	West.-Baldwin
	3	B-B	Sw.	Diesel-Elec.	230,000	1,000	July	.....	G. E.-American
Baltimore & Ohio	1	B-B	Sw.	Diesel-Elec.	160,000	500	September	December	G. E.-Cummins
	7	B-B	Sw.	Diesel-Elec.	240,000	1,000	October	.....	West.-Baldwin
	4	B-B	Sw.	Diesel-Elec.	240,000	1,000	May	August	West.-Baldwin
	4	B-B	Sw.	Diesel-Elec.	240,000	1,000	May	November	West.-Baldwin
	2‡	B-B	Sw.	Diesel-Elec.	230,000	1,000	May '42	April	G. E.-American
	4‡	B-B	Sw.	Diesel-Elec.	230,000	1,000	May '42	September	G. E.-American
	1‡	B-B	Sw.	Diesel-Elec.	230,000	1,000	May '42	November	G. E.-American
	6	B-B	Sw.	Diesel-Elec.	198,000	660	November	.....	G. E.-American
	3	B-B	Sw.	Diesel-Elec.	230,000	1,000	October	.....	G. E.-American
(Staten Island Rapid Transit)	3	B-B	Sw.	Diesel-Elec.	230,000	1,000	April	December	G. E.-American
	5	B-B	Sw.	Diesel-Elec.	230,000	1,000	April	.....	G. E.-American
	1	B-B	Sw.	Diesel-Elec.	130,000	400	April	September	G. E.-Cummins
Bamberger	1‡	B-B	Sw.	Diesel-Elec.	230,000	1,000	Aug. '42	May	G. E.-American
Bingham & Garfield	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	January	February	West.-Baldwin
Boston & Maine	6	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	March	.....	Electric-Motive
	3	B-B	Sw.	Diesel-Elec.	230,000	1,000	September	.....	G. E.-American
	3	B-B	Sw.	Diesel-Elec.	198,000	660	September	.....	G. E.-American
Bush Terminal	1	B-B	Sw.	Diesel-Elec.	160,000	500	April	August	G. E.-Cummins
Canton	2	B-B	Sw.	Diesel-Elec.	240,000	1,000	August	.....	West.-Baldwin
Central of Georgia	1‡	B-B	Sw.	Diesel-Elec.	230,000	1,000	Dec. '42	.....	G. E.-American
Central of New Jersey	5	B-B	Sw.	Diesel-Elec.	240,000	1,000	March	.....	West.-Baldwin
	5	B-B	Sw.	Diesel-Elec.	230,000	1,000	March	.....	G. E.-American
Chicago & North Western	3	B-B	Sw.	Diesel-Elec.	88,000	380	November	.....	West.-Whit.-Cater.
	11	B-B	Sw.	Diesel-Elec.	230,000	1000	August	.....	G. E.-American
	2	B-B	Rd. & Sw.	Diesel-Elec.	248,000	1000	August	.....	G. E.-American
	7	B-B	Sw.	Diesel-Elec.	198,000	660	August	.....	G. E.-American
Chicago, Burlington & Quincy	6	B-B	Sw.	Diesel-Elec.	240,000	1,000	August	Oct.-Nov.	West.-Baldwin
	2	B-B	Sw.	Diesel-Elec.	240,000	1,000	October	.....	West.-Baldwin
	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	April	April	G. E.-American
Chicago, Milwaukee, St. Paul & Pacific	6	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	May	.....	Electro-Motive
	2	B-B	Sw.	Diesel-Elec.	240,000	1,000	May	.....	West.-Baldwin
	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	August	August	G. E.-American
	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	May	December	West.-Baldwin
	1	B-B	Sw.	Diesel-Elec.	230,000	1,000	May	December	G. E.-American
Chicago, Rock Island & Pacific	3	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	January	.....	Electro-Motive
	3	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	June	.....	Electro-Motive
	5	B-B	Sw.	Diesel-Elec.	230,000	1,000	July	.....	G. E.-American
Chicago, St. Paul, Minneapolis & Omaha	3	B-B	Sw.	Diesel-Elec.	230,000	1,000	August	.....	G. E.-American
Chicago Short Line	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	June	.....	West.-Baldwin
Delaware, Lackawanna & Western	5	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	July	.....	Electro-Motive
Denver & Rio Grande Western	3	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	September	.....	Electro-Motive
	10‡	B-B	Sw.	Diesel-Elec.	230,000	1,000	1942	Mar.-Oct.	G. E.-American
Erie	6	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	April	.....	Electro-Motive
Florida East Coast	12	A1A-A1A	Pass.	Diesel-Elec.	313,300	2,000	April	.....	Electro-Motive
Gulf Coast Lines	3	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	.....	West.-Baldwin
Great Northern	8	2(A1A-A1A)	Road	Diesel-Elec.	626,600	4,000	April	.....	Electro-Motive
	40	B-B	Sw.	Diesel-Elec.	250,000	1,000	April	.....	Electro-Motive
	2	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	Oct.-Nov.	West.-Baldwin
Gulf, Mobile & Ohio	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	August	.....	G. E.-American
	1	B	Sw.	Diesel-Mech.	50,000	190	April	September	Whitcomb-Cater.
Houston Belt & Terminal	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	April	September	G. E.-American
International Great Northern	3	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	.....	West.-Baldwin
Lehigh Valley	2	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	July	.....	Electro-Motive
	5	B-B	Sw.	Diesel-Elec.	240,000	1,000	October	.....	West.-Baldwin
	5	B-B	Sw.	Diesel-Elec.	230,000	1,000	October	.....	G. E.-American
Longview Portland & Northern	1	B-B	Sw.	Diesel-Elec.	160,000	500	May	.....	G. E.-Cummins
Louisville & Nashville	4	B-B	Sw.	Diesel-Elec.	240,000	1,000	January	July	West.-Baldwin
	5	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	.....	West.-Baldwin
	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	January	April	G. E.-American
Minneapolis & St. Louis	3	B-B	Rd. & Sw.	Diesel-Elec.	250,000	1,000	June	.....	Electro-Motive
Missouri Pacific	5	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	.....	West.-Baldwin
	5	B-B	Sw.	Diesel-Elec.	230,000	1,000	February	Nov.-Dec.	G. E.-American
	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	February	.....	G. E.-American
Nashville, Chattanooga & St. Louis	5	B-B	Sw.	Diesel-Elec.	240,000	1,000	April	August	West.-Baldwin
Newburgh & South Shore	1	B-B	Sw.	Diesel-Elec.	198,000	660	March	September	G. E.-American
	1	B-B	Sw.	Diesel-Elec.	198,000	660	March	.....	G. E.-American
New York Central	20	B-B	Sw.	Diesel-Elec.	198,000	660	August	.....	G. E.-American
	10	B-B	Sw.	Diesel-Elec.	230,000	1,000	September	.....	G. E.-American
New York, New Haven & Hartford	4	B-B	Sw.	Diesel-Elec.	230,000	1,000	April	December	G. E.-American
	6	B-B	Sw.	Diesel-Elec.	230,000	1,000	April	.....	G. E.-American
	10	A1A-A1A	Pass. & Frt.	Diesel-Elec.	300,000	2,000	September	.....	G. E.-American
Northern Pacific	4	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	October	.....	Electro-Motive
	4	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	May	.....	Electro-Motive
	2	B-B	Sw.	Diesel-Elec.	240,000	1,000	September	.....	West.-Baldwin
	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	October	.....	West.-Baldwin
	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	September	October	G. E.-American
	1	B-B	Sw.	Diesel-Elec.	230,000	1,000	September	.....	G. E.-American
Northern Pacific Terminal of Oregon	3	B-B	Sw.	Diesel-Elec.	230,000	1,000	April	Oct.-Nov.	G. E.-American
Reading	3	B-B	Sw.	Diesel-Elec.	240,000	1,000	March	.....	West.-Baldwin
	3	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	June	West.-Baldwin
	2	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	November	West.-Baldwin
	5	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	.....	West.-Baldwin
	5	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	October	.....	Electro-Motive
Rio Grande & Eagle Pass	1	B-B	Sw.	Diesel-Elec.	90,000	300	May	September	G. E.-Cummins
Seaboard Air Line	10	2(A1A-A1A)	Road	Diesel-Elec.	626,600	4,000	November	.....	Electro-Motive
St. Louis-San Francisco	5	B-B	Sw.	Diesel-Elec.	88,000	380	March	June-Dec.	G. E.-Cater.
St. Louis Southwestern	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	April	.....	West.-Baldwin
	2	B-B	Sw.	Diesel-Elec.	240,000	1,000	November	.....	West.-Baldwin
St. Mary's	3‡	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	Nov. '42	.....	Electro-Motive
Southern	1	B-B	Sw.	Diesel-Elec.	160,000	500	November	.....	G. E.-Cummins
	4	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	June	.....	Electro-Motive
	15	B-B	Sw.	Diesel-Elec.	250,000	1,000	June	.....	Electro-Motive
	5	B-B	Sw.	Diesel-Elec.	230,000	1,000	July	.....	G. E.-American
Southern Pacific	7	B-B	Sw.	Diesel-Elec.	240,000	1,000	September	.....	West.-Baldwin
	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	April	West.-Baldwin
	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	September	West.-Baldwin
	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	December	West.-Baldwin
	3	B-B	Sw.	Diesel-Elec.	240,000	1,000	February	.....	West.-Baldwin
	2	B-B	Sw.	Diesel-Elec.	240,000	1,000	January	January	West.-Baldwin
	12	B-B	Sw.	Diesel-Elec.	230,000	1,000	September	.....	G. E.-American
Spokane, Portland & Seattle	4	B-B	Sw.	Diesel-Elec.	230,000	1,000	August	December	G. E.-American
Tacoma Belt Line	2	B-B	Sw.	Diesel-Elec.	100,000	300	August	.....	G. E.-Cummins
Union Pacific	14	B-B	Sw.	Diesel-Elec.	230,000	1,000	August	Sept.-Dec.	G. E.-American
	4	B-B	Sw.	Diesel-Elec.	240,000	1,000	August	October	West.-Baldwin
	7	B-B	Sw.	Diesel-Elec.	240,000	1,000	August	.....	As Allocated

‡ 1942 totals have been adjusted to include these locomotives which were not reported last year.

Purchaser	No.	Wheel arrangement	Service	Type	Weight	Horsepower	Date of Order	Date of Delivery	Builder Electrical Equipment-Locomotive Builder-Engine Builder
Wabash	2	B-B	Sw.	Diesel-Elec.	250,000	1,000	September	.....	Electro-Motive
	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	September	.....	West.-Baldwin
	3	B-B	Sw.	Diesel-Elec.	.....	1,000	September	.....	G. E.-American
Western Maryland	2	B-B	Sw.	Diesel-Elec.	240,000	1,000	September	November	West.-Baldwin
	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	September	.....	West.-Baldwin
	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	October	.....	G. E.-American
	1	B-B	Sw.	Diesel-Elec.	230,000	1,000	October	December	G. E.-American
	2	B-B	Sw.	Diesel-Elec.	88,000	380	February	July-Aug.	G. E.-Cater.
Western Pacific	6	4(B-B)	Freight	Diesel-Elec.	856,000	5,400	September	.....	Electro-Motive

Industrial and Private Car Line Orders—For Service in the United States

Purchaser	No.	Wheel arrangement	Service	Type	Weight	Horsepower	Date of Order	Date of Delivery	Builder Electrical Equipment-Locomotive Builder-Engine Builder
Albany Port Dist. Comm.	1	B-B	Sw.	Diesel-Elec.	130,000	400	March	August	G. E.-Cummins
Aluminum Co. of America	1	B	Sw.	Diesel-Elec.	50,000	150	January	January	G. E.-Cummins
	1	B	Sw.	Diesel-Elec.	50,000	150	January	February	G. E.-Cummins
	1	B-B	Sw.	Diesel-Elec.	100,000	300	February	May	G. E.-Cummins
	1	B-B	Sw.	Diesel-Elec.	90,000	300	November	November	G. E.-Cummins
	1	B-B	Sw.	Diesel-Elec.	130,000	400	March	July	G. E.-Cater
	1	B-B	Sw.	Diesel-Elec.	160,000	500	November	.....	G. E.-Cummins
	1	B	Sw.	Diesel-Mech.	40,000	193	June	.....	Whitcomb-Hercules
Aluminum Ore Co.	1	B-B	Sw.	Diesel-Elec.	160,000	500	November	.....	G. E.-Cummins
American Brake Shoe & Fdy. Co.	1	B-B	Sw.	Diesel-Elec.	90,000	300	September	September	West.-Whit.-Cummins
American Car & Fdy. Co.	1	B-B	Sw.	Diesel-Elec.	90,000	300	October	October	G. E.-Cummins
American Rolling Mill Co.	2	B	Sw.	Diesel-Elec.	50,000	150	January	February	G. E.-Cummins
	1	B-B	Sw.	Diesel-Elec.	160,000	500	September	.....	G. E.-Cummins
American Steel Foundries	1	B-B	Sw.	Diesel-Elec.	130,000	400	September	.....	G. E.-Whit.-Cummins
	1	B-B	Sw.	Diesel-Elec.	130,000	400	June	.....	G. E.-Whit.-Cummins
	1	B-B	Sw.	Diesel-Elec.	90,000	300	May	August	G. E.-Cummins
	1	B-B	Sw.	Diesel-Elec.	130,000	400	August	.....	G. E.-Cummins
Ash Grove Lime & Portland Cem.	1	B-B	Sw.	Diesel-Elec.	90,000	300	June	.....	G. E.-Cummins
Bethlehem Steel Co.	2	B-B	Sw.	Diesel-Elec.	100,000	300	April	.....	G. E.-Cummins
(Sparrow's Point Shipyard)	1	B	Sw.	Diesel-Elec.	50,000	150	March	.....	G. E.-Cummins
Bd. of State Harbor Comm. (Calif.)	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	July	July	G. E.-American
Braun, C. F., & Co.	1	B-B	Sw.	Diesel-Elec.	90,000	300	February	May	G. E.-Cummins
Broward County Port Auth.	1	B-B	Sw.	Diesel-Elec.	198,000	600	January	February	Electro-Motive
	1	B-B	Sw.	Diesel-Elec.	198,000	660	August	September	G. E.-American
	1	B-B	Sw.	Diesel-Elec.	160,000	500	January	.....	G. E.-Cummins
Buckeye Steel Castings Co.	1	B-B	Sw.	Diesel-Elec.	100,000	300	May	July	G. E.-Cummins
Calumet & Hecla Con. Copper	1	B-B	Sw.	Diesel-Elec.	90,000	300	May	July	G. E.-Cummins
Cargill Inc.	1	B	Sw.	Diesel-Elec.	50,000	150	October	.....	G. E.-Cummins
Carnegie-Illinois Steel Co.	1	B	Sw.	Diesel-Mech.	40,000	160	January	July	Whitcomb-Hercules
Chattanooga Traction Co.	1	B-B	Sw.	Diesel-Elec.	88,000	380	April	.....	G. E.-Cater
Chemical Construction Co.	1	B-B	Sw.	Diesel-Elec.	160,000	500	January	April	G. E.-Cummins
Columbia Steel Co.	2	B-B	Sw.	Diesel-Elec.	240,000	1000	March	October	West.-Baldwin
Commonwealth Edison Co.	1	B-B	Sw.	Diesel-Elec.	198,000	600	October	.....	Electro-Motive
Consolidated Steel Co.	1	B	Sw.	Diesel-Elec.	50,000	150	January	February	G. E.-Cummins
	1	B-B	Sw.	Diesel-Elec.	90,000	300	March	May	G. E.-Cummins
Curtiss-Wright Corporation	1	B-B	Sw.	Diesel-Elec.	90,000	300	January	May	G. E.-Cummins
(for Defense Plant Corp.)	1	B-B	Sw.	Diesel-Elec.	90,000	300	March	May	G. E.-Cummins
Dewey Portland Cement Co.	1	B-B	Sw.	Diesel-Elec.	90,000	300	June	.....	G. E.-Cummins
DuPont de Nemours, E. I., Co.	3	B	Sw.	Gas.-Mech.	60,000	175	April	December	Fate.Root.Heath-Le Rio
General Supply Company	1	B-B	Sw.	Diesel-Elec.	70,000	386	April	June	West.-Whit.-Hercules
Higgins Aircraft Corporation	1	B	Sw.	Diesel-Elec.	50,000	150	February	March	G. E.-Cummins
High Point, Thomasville & Denton	1	B-B	Frt. & Sw.	Diesel-Elec.	88,000	380	November	.....	G. E.-Cater
Inland Steel Company	2	B-B	Sw.	Diesel-Elec.	100,000	660	July	.....	G. E.-American
Jackson Iron & Steel	1	C	Sw.	Diesel-Elec.	130,000	400	April	.....	West.-Porter-Cummins
Jones, J. A., Construction Corp.	1	B-B	Sw.	Diesel-Elec.	90,000	300	July	.....	G. E.-Cummins
Kaiser Company	2	B-B	Sw.	Diesel-Elec.	160,000	500	January	.....	G. E.-Cummins
(Iron & Steel Div.)	2	B-B	Sw.	Diesel-Elec.	160,000	500	March	.....	G. E.-Cummins
Kalamazoo Veg. Parchment	1	B	Sw.	Diesel-Elec.	50,000	150	October	.....	G. E.-Cummins
Kellogg, N. W., Co.	1	B-B	Sw.	Diesel-Elec.	90,000	300	January	February	G. E.-Cummins
Lehigh Portland Cement Co.	1	B-B	Sw.	Diesel-Elec.	90,000	300	June	July	G. E.-Cummins
Lennig, Charles & Co.	1	B	Sw.	Diesel-Mech.	60,000	180	October	December	Fate.Root.Heath-Cater
Lone Star Steel Co.	1	B-B	Sw.	Diesel-Elec.	90,000	300	March	August	West.-Whit.-Cummins
Ludlow Mfg. & Sales	1	B	Sw.	Diesel-Elec.	50,000	150	November	.....	G. E.-Cummins
Manning, Maxwell & Moore	1	B	Sw.	Gas.-Mech.	40,000	150	March	April	Fate.Root.Heath-Buda
Missouri Portland Cement Co.	1	C	Sw.	Diesel-Elec.	100,000	300	March	August	G. E.-Porter-Cummins
Mt. Vernon Car Mfg. Co.	1	B-B	Sw.	Diesel Elec.	90,000	300	June	September	G. E.-Cummins
National Supply Co.	1	B-B	Sw.	Diesel-Elec.	200,000	800	August	.....	G. E.-Cummins
New England Shipbuilding Corp.	1	B-B	Sw.	Diesel-Elec.	90,000	300	July	September	G. E.-Cummins
North Carolina Shipbuilding	1	B-B	Sw.	Diesel-Elec.	90,000	300	March	.....	G. E.-Cummins
Oahu Railway & Land Co.	2	B-B	Frt. & Sw.	Diesel-Elec.	94,000	380	May	October	G. E.-Cater
Oliver Iron Mining Co.	5‡	B-B	Sw.	Diesel-Elec.	240,000	1,000	1942	Mar.-May	West.-Baldwin
	1	B-B	Sw.	Diesel-Elec.	240,000	1,000	June	July	West.-Baldwin
	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	March	May	G. E.-American
	2	B-B	Sw.	Diesel-Elec.	230,000	1,000	March	.....	G. E.-American
Pacific Coast Aggregates, Inc.	1	B-B	Sw.	Diesel-Elec.	90,000	300	June	October	G. E.-Cummins
Pratt & Whitney	1	B	Sw.	Diesel-Elec.	50,000	150	April	August	West.-F.R.H.-Cummins
Pullman Standard Car Mfg. Co.	1	B-B	Sw.	Diesel-Elec.	90,000	300	March	October	G. E.-Cummins
Republic Steel Co.	1	B	....	Diesel-Mech.	90,000	340	July	Mar. '44	Fate.Rt.Heath-Coop.Bes.
	2	B-B	Sw.	Diesel-Elec.	198,000	660	1943	Aug.-Oct.	G. E.-American
	1	B-B	Sw.	Diesel-Elec.	160,000	500	October	.....	G. E.-Cummins
Rust Engineering, Inc.	1	B-B	Sw.	Diesel-Elec.	130,000	400	October	.....	G. E.-Cummins
Sheffield Steel	2‡	B-B	Sw.	Diesel-Elec.	198,000	660	1942	July-Aug.	G. E.-American
Sheffield Steel of Texas	2	B-B	Sw.	Diesel-Elec.	88,000	380	September	.....	G. E.-Cater
Shell Oil Co.	1	B-B	Sw.	Diesel-Elec.	100,000	300	November	Jan. '44	West.-F.R.H.-Cummins
Studebaker Corp.	1	B-B	Sw.	Diesel-Elec.	130,000	400	May	October	G. E.-Cummins
Tennessee Products Corp.	1	B	Sw.	Diesel-Elec.	50,000	150	February	March	G. E.-Cummins
Tonawanda Iron Corp.	1	B-B	Sw.	Diesel-Elec.	90,000	300	May	September	G. E.-Cummins
Walsh-Kaiser Company	1	B	Sw.	Diesel-Elec.	90,000	300	May	August	West.-Whit.-Cummins
Westinghouse Elec. & Mfg.	1	B-B	Sw.	Diesel-Elec.	160,000	566	May	.....	West.-Whit.-Buda
Wheeling Steel Co.	1	B-B	Sw.	Diesel-Elec.	230,000	1,000	1943	August	G. E.-American
Whitin Machine Works	1	B-B	Sw.	Diesel-Elec.	130,000	400	June	October	G. E.-Cummins

United States—Export

Purchaser	No.	Wheel arrangement	Service	Type	Weight	Horsepower	Date of Order	Date of Delivery	Builder Electrical Equipment-Locomotive Builder-Engine Builder
Aluminum Co. of Canada	1	B-B	Sw.	Diesel-Elec.	230,000	1,000	February	March	G. E.-American
	1	B-B	Sw.	Diesel-Elec.	230,000	1,000	February	July	G. E.-American
Cia. Siderurigica Belgo-Min.	2	B-B	Sw.	Diesel-Elec.	100,000	300	August	.....	West.-Whit.-Cummins
Union Miniere du Haut Katonga-Belgian Congo, Africa	5	B-B	Sw.	Elec.	132,000	640	May	1944	Westinghouse-Wnit.

‡ 1942 totals have been adjusted to include these locomotives which were not reported last year.

No Railroad Passenger Cars in 1943

Greater car utilization was substituted for new additions—Post-war building plans are made ready

By Arthur J. McGinnis
Associate Editor

THE 1941 ruling of the former Supply, Priorities and Allocations Board, predecessor of the War Production Board, by which scarce materials were diverted from passenger car construction to other purposes, continued in effect during 1943 and no new passenger-train cars were authorized for building for the railroads during the year. Completion of deliveries to the railroads of 242 cars during 1942 ended for a time new additions to our domestic supply of this type of equipment.

Only new passenger equipment authorized in 1943 was for the Army and included 1,200 triple-deck troop sleeping cars ordered from the Pullman-Standard Car Manufacturing Company and 400 special kitchen cars from the American Car & Foundry Co. These latter are intended for subsequent conversion into box or express cars. Also being built by a. c. f. are 40 kitchen cars for use with hospital ward cars now being converted from old parlor cars.

Passenger equipment building reported during 1943 other than for the Army included nine coaches built for export to Mozambique, Portuguese East Africa, representing the completion of an order for nineteen coaches placed in March, 1941, ten of which were delivered in 1942; and eight coaches and four rail-motor cars built for export to the Sorocabana Railway, Brazil, the order for which was placed in October, 1940.

Only domestic railroad orders reported during the year included 50 coaches placed by the Boston & Maine in July with the Pullman-Standard Car Manufacturing Company and six express and two baggage-mail cars placed contingently by the Central of Georgia in March with both Pullman and American Car & Foundry.

In place of new additions, the railroads, in breaking all passenger handling records during 1943, substituted greater car utilization in the form of increased car occupancy, higher train speeds and greater proficiency in keeping cars in operation. Pullman and other cars were converted to coaches to add passenger carrying capacity.

Although no building for domestic railroad service took place, railroads and builders during the year turned to laying plans for a post-war passenger service that would surpass in speed, economy of operation and comfort and low cost to the public anything previously offered, employing also the important developments in construction materials and techniques taught by the war. Large expenditures for modern equipment may be expected as soon as materials and manpower are again available. Old and outmoded passenger cars must be replaced with the modern lightweight equipment so favored by the public for the railroads to successfully carry out their intention to fight the competition of the private automobile, highway bus and airplane.

How many new cars will be purchased cannot be reasonably estimated now due to the present uncertainty with regard to post-war earnings, volume of passenger traffic to be handled and efficiency of car operation but the competitive situation and the number of currently obsolete and rapidly depreciating cars indicate that orders will run into hundreds and thousands.

Improved lighting and seating comfort, spaciousness and style will feature these lightweight and air-conditioned cars. New Pullman designs are ready for production and additions by the railroads of coach streamliners will add frequency of service to low price and comfort to combat competition. Although no provision for passenger car construction during 1944 has been made by the War Production Board, as the end of the war draws closer, plans for them are ready.

Orders for 38,958 Freight Cars Placed by Railroads in 1943

Current backlog of unfilled orders greater than total 1943 deliveries—50,000 cars promised for 1944

By Arthur J. McGinnis

Associate Editor

THERE were 39,916 freight cars reported ordered for domestic service during 1943, of which 38,958 were ordered by railroads and 958 by industrial companies and private car lines. Railroad orders were divided 14,324, or 37 per cent, to company shops and 24,634, or 63 per cent, to contract car builders.

Only 329 of the 38,958 cars ordered by the carriers were reported unauthorized for building at the year-end and 11,338 of the total ordered were reported delivered during the year. Most of the cars ordered, or 29,988, were of composite wood and steel construction. Fifty of the 958 cars ordered by industrial companies and private car lines were reported unauthorized for building at the year-end, with 467 of the total delivered during the year. Purchases by the carriers consisted chiefly of hopper, gondola and box cars, and by industrial companies of tank and gondola cars.

Table I—Freight Car Orders for Domestic Service in 1943

Builder	Railroads	Industrial and Private Car Cos.	Total	Per Cent of Total
Company Shops	14,324	...	14,324	36
Contract Car Builders	24,634	958	25,592	64
Total	38,958	958	39,916	100

Note.—Orders by U. S. Government departments are excluded.

No Figures on Government Orders

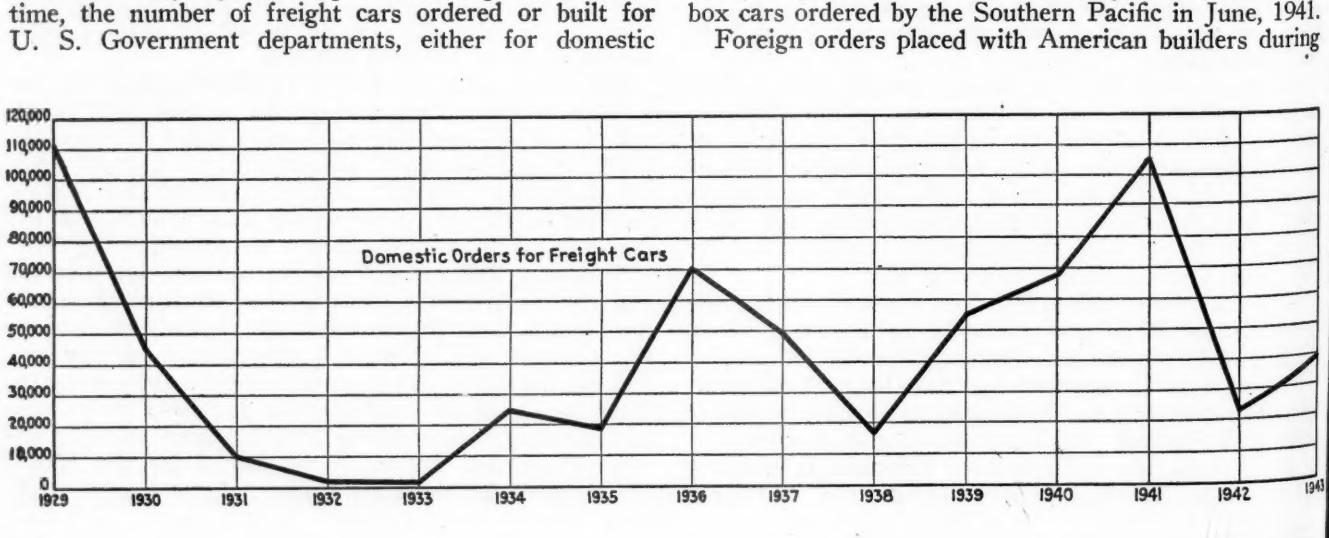
The *Railway Age* is not permitted to publish, at this time, the number of freight cars ordered or built for U. S. Government departments, either for domestic service or for export, and, for comparative purposes, government orders have been excluded from 1942 totals in Table II, and from 1941 and 1942 totals in Table III, in which are set forth an analysis and comparison of the orders shown in detail in the appended list. Orders placed in 1941 and 1942 are also adjusted in the tables to eliminate orders subsequently cancelled in 1942 and 1943 due to government restrictions on building. Principal cancellations reported during 1943 of prior years' orders include 1,000 box cars originally ordered by the Baltimore & Ohio in February, 1942; 100 box and 2,000 hopper cars ordered by the Louisville & Nashville in December, 1941; 1,000 gondola cars (for the Cincinnati, New Orleans & Texas Pacific) and 2,500 hopper cars ordered by the Southern in February, 1942; and 1,200 box cars ordered by the Southern Pacific in June, 1941.

Foreign orders placed with American builders during

Table II—Domestic Car Orders by Type and Purchaser

Type of Freight Car Ordered	Railroads		Industrial and Private Car Cos.		Total Orders	
	1943	1942	1943	1942	1943	1942
Box	8,353	1,924	2	197	8,355	2,121
Hopper	18,175	8,368	25	1,158	18,200	9,526
Gondola	9,315	5,535	214	371	9,529	5,906
Flat	2,577	1,439	88	43	2,665	1,482
Tank	50	10	516	1,724	566	1,734
Refrigerator	...	...	...	750	...	750
Air-Dump	4	...	113	280	117	280
Caboose	437	131	...	...	437	131
Miscellaneous	47	...	...	...	47	...
Total	38,958	17,407	958	4,523	39,916	21,930

Note.—1942 totals are adjusted to eliminate orders subsequently cancelled in 1943 due to WPB restrictions on building.



1943 totaled 872 cars of which about 177 were delivered during the year. Canadian orders numbered 5,650 cars chiefly for the Canadian National and Canadian Pacific.

Freight cars built during 1943 for domestic service, exclusive of cars delivered to U. S. Government departments, totaled 31,591 or 27,980 fewer than in 1942. Of these, 23,738 were constructed by contract car-builders and 7,853 by railroad shops. (December deliveries as used herein are partially estimated.) In addition, there were 1,135 cars built in the United States for export, exclusive of lend-lease and government orders. Canadian deliveries numbered 4,320 cars. A comparison of 1943 deliveries with other years in the 1929-1943 cycle is set forth in Table IV.

Table III—Total Orders for Freight Cars 1929-1943

Year	Domestic	U. S. Export	Total U. S.	Canadian
1943	39,916	872	40,788	5,650
1942	21,930	1,878	23,808	1,637*
1941	106,309	2,985	109,294	7,578*
1940	67,852	1,774	69,626	936
1939	54,441	1,476	55,917	7,007*
1938	16,647	442	17,089	4,902
1937	49,331	1,369	50,700	7,397
1936	70,842	526	71,368	271
1935	18,708	110	18,818	2,421
1934	24,610	1,323	25,933	12
1933	1,686	132	1,818	75
1932	1,968	77	2,045	501
1931	10,826	151	10,977	3,807
1930	45,731	1,200	46,931	1,936
1929	111,321	3,023	114,344	9,899

* (Includes Canadian export orders.)

Note.—The totals of domestic and U. S. export orders for years 1941-1943 exclude U. S. Government purchases. Domestic orders placed in 1941 and 1942 are adjusted to eliminate orders subsequently cancelled due to WPB restrictions on building. In certain instances domestic orders placed in December are not reported until following year; statistics for years 1929-1942 are adjusted to eliminate this overlap.

Production figures as used herein are not comparable with figures on the number of cars installed as reported in statistics issued by the A. A. R. as these latter include, in addition to new units acquired, cars re-built and re-written into property accounts, used units acquired, leased units returned to service, and new and used units leased from others.

The "Backlog" on December 1

Because of the early publication date of this summary of orders and deliveries, the latest available figures showing the total backlog of cars on order and status of the car-building program were as of December 1, 1943. As of December 1, there were approximately 40,640 cars on order and undelivered for domestic service or about 9,000 more than were delivered during the entire year. These cars were divided 15,990 on order with railroad shops and 24,650 with contract car builders and comprised 16,100 box, 15,100 hopper, 5,900 gondola, 1,400 flat, 200 stock, 270 tank, 1,250 refrigerator, and 420 caboose cars.

Under the War Production Board's controlled materials plan, freight cars are authorized for construction in advance from future materials' allotments. This procedure aids car-building plants in planning production schedules and tends to hold down the accumulation of a large backlog of unauthorized orders. Thus, of the total backlog of 40,640 cars, only about 4,800 were without WPB authority to build, with the remaining 35,840 made up of cars scheduled for delivery as far ahead as the first quarter of 1945.

Included in the 35,840 cars authorized but undelivered are 770 cars remaining to be shipped of the WPB's 20,000-car program for the first six months of 1943; 5,050 remaining of the number authorized by the WPB out of steel allotted for the third quarter, 1943; 10,160 remaining of WPB authorizations from fourth quarter, 1943 materials; 10,250 released from authorized advance allotments of steel for the first quarter, 1944; 6,680 authorized from second quarter, 1944 materials; 2,130 from third quarter, 1944 materials and 800 from fourth quarter, 1944 materials. The authorizations cover 12,425 box, 14,710 hopper, 5,575 gondola, 1,390 flat, 270 tank, 1,050 refrigerator and 420 caboose cars which are divided in total, 15,020 with railroad shops and 20,820 with contract builders. Due to the natural time-lag before allotted materials arrive at car-building plants and can be converted into completed cars, many of the cars authorized from third and fourth quarter, 1944 materials will be delivered in 1945.

Production Program for 1944

During December the War Production Board announced a 1944 building program of 50,000 cars of which 30,000 will be of all-steel construction rather than of the composite type heretofore required. (Deliveries of all-steel cars are expected to begin about mid-year). Included in the 50,000 car program are the 35,840 cars presently authorized and the 4,800 awaiting WPB release and it is expected that orders for the balance will be quickly placed upon extension of the five-year amortization plan to railway equipment.

The appended tables contain a detailed statement of domestic orders for new freight cars, or those having new bodies, placed during 1942 by railroads, industrial companies and private car lines; also, those placed for export and in Canada. Cars ordered but without WPB authority to build are marked with an asterisk in the "Date of Delivery" column.

Table IV—Freight Cars Built in 1929-1943

Year	Domestic	U. S. Export	Total U. S.	Canadian
1943	31,591	1,135	32,726	4,320
1942	59,571	4,908	64,479	867
1941	79,396	2,312	81,708	5,135*
1940	52,929	1,622	54,551	2,052
1939	24,876	181	25,057	2,206*
1938	17,473	549	18,022	5,115*
1937	75,003	1,121	76,124	6,595
1936	45,822	493	46,315	1,800
1935	6,933	888	7,821	801
1934	25,176	151	25,327	....
1933	2,160	151	2,311	550
1932	3,254	82	3,336	....
1931	13,205	409	13,614	4,633
1930	75,188	1,909	77,097	6,923
1929	82,240	3,168	85,408	8,557

* Includes Canadian export deliveries.

Note.—1943 and 1942 domestic and U. S. export totals exclude freight cars built for the U. S. Government and lend-lease.

The list of orders was compiled from information furnished to the *Railway Age* by the railroads, private car lines, and other purchasers of cars in response to requests for this information. Data thus compiled were then checked against lists of orders supplied by the car builders. Production figures were secured in response to requests to the freight car builders. As in former years, the *Railway Age* is indebted to the American Railway Car Institute for assistance in making available reports of companies affiliated with that organization.

The *Railway Age* cannot guarantee the listing of orders to be complete or the statistical accuracy of the production figures. However, it is believed that such omissions as occur will be found to be relatively small and unimportant, and will not vitiate the value of the figures, particularly with respect to comparisons with preceding years.

The tabulation of 1943's freight car orders begins on the following page.

Orders for 38,958 Freight Cars Placed by Railroads in 1943

Current backlog of unfilled orders greater than total 1943 deliveries—50,000 cars promised for 1944

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Associate Editor

THERE were 39,916 freight cars reported ordered for domestic service during 1943, of which 38,958 were ordered by railroads and 958 by industrial companies and private car lines. Railroad orders were divided 14,324, or 37 per cent, to company shops and 24,634, or 63 per cent, to contract car builders.

Only 329 of the 38,958 cars ordered by the carriers were reported unauthorized for building at the year-end and 11,338 of the total ordered were reported delivered during the year. Most of the cars ordered, or 29,988, were of composite wood and steel construction. Fifty of the 958 cars ordered by industrial companies and private car lines were reported unauthorized for building at the year-end, with 467 of the total delivered during the year. Purchases by the carriers consisted chiefly of hopper, gondola and box cars, and by industrial companies of tank and gondola cars.

Table I—Freight Car Orders for Domestic Service in 1943

Builder	Railroads	Industrial and Private Car Cos.	Total	Per Cent of Total
Company Shops	14,324	...	14,324	36
Contract Car Builders	24,634	958	25,592	64
Total	38,958	958	39,916	100

Note.—Orders by U. S. Government departments are excluded.

No Figures on Government Orders

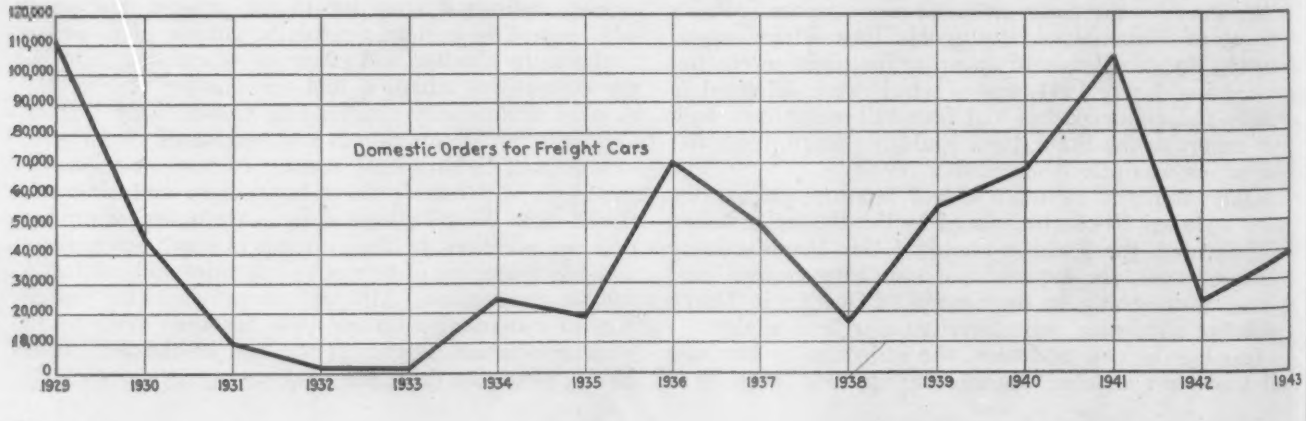
The *Railway Age* is not permitted to publish, at this time, the number of freight cars ordered or built for U. S. Government departments, either for domestic service or for export, and, for comparative purposes, government orders have been excluded from 1942 totals in Table II, and from 1941 and 1942 totals in Table III, in which are set forth an analysis and comparison of the orders shown in detail in the appended list. Orders placed in 1941 and 1942 are also adjusted in the tables to eliminate orders subsequently cancelled in 1942 and 1943 due to government restrictions on building. Principal cancellations reported during 1943 of prior years' orders include 1,000 box cars originally ordered by the Baltimore & Ohio in February, 1942; 100 box and 2,000 hopper cars ordered by the Louisville & Nashville in December, 1941; 1,000 gondola cars (for the Cincinnati, New Orleans & Texas Pacific) and 2,500 hopper cars ordered by the Southern in February, 1942; and 1,200 box cars ordered by the Southern Pacific in June, 1941.

Foreign orders placed with American builders during

Table II—Domestic Car Orders by Type and Purchaser

Type of Freight Car Ordered	Railroads		Industrial and Private Car Cos.		Total Orders	
	1943	1942	1943	1942	1943	1942
Box	8,353	1,924	2	197	8,355	2,121
Hopper	18,175	8,368	25	1,158	18,200	9,526
Gondola	9,315	5,535	214	371	9,529	5,906
Flat	2,577	1,439	88	43	2,665	1,482
Tank	50	10	516	1,724	566	1,734
Refrigerator	...	...	...	750	...	750
Air-Dump	4	...	113	280	117	280
Caboose	437	131	...	...	437	131
Miscellaneous	47	...	...	...	47	...
Total	38,958	17,407	958	4,523	39,916	21,930

Note.—1942 totals are adjusted to eliminate orders subsequently cancelled in 1943 due to WPB restrictions on building.



1943 totaled 872 cars of which about 177 were delivered during the year. Canadian orders numbered 5,650 cars chiefly for the Canadian National and Canadian Pacific.

Freight cars built during 1943 for domestic service, exclusive of cars delivered to U. S. Government departments, totaled 31,591 or 27,980 fewer than in 1942. Of these, 23,738 were constructed by contract car-builders and 7,853 by railroad shops. (December deliveries as used herein are partially estimated.) In addition, there were 1,135 cars built in the United States for export, exclusive of lend-lease and government orders. Canadian deliveries numbered 4,320 cars. A comparison of 1943 deliveries with other years in the 1929-1943 cycle is set forth in Table IV.

Table III—Total Orders for Freight Cars 1929-1943

Year	Domestic	U. S. Export	Total U. S.	Canadian
1943	39,916	872	40,788	5,650
1942	21,930	1,878	23,808	1,637*
1941	106,309	2,985	109,294	7,578*
1940	67,852	1,774	69,626	936
1939	54,441	1,476	55,917	7,007*
1938	16,647	442	17,089	4,902
1937	49,331	1,369	50,700	7,397
1936	70,842	526	71,368	271
1935	18,708	110	18,818	2,421
1934	24,610	1,323	25,933	12
1933	1,686	132	1,818	75
1932	1,968	77	2,045	501
1931	10,826	151	10,977	3,807
1930	45,731	1,200	46,931	1,936
1929	111,321	3,023	114,344	9,899

* (Includes Canadian export orders.)

Note.—The totals of domestic and U. S. export orders for years 1941-1943 exclude U. S. Government purchases. Domestic orders placed in 1941 and 1942 are adjusted to eliminate orders subsequently cancelled due to WPB restrictions on building. In certain instances domestic orders placed in December are not reported until following year; statistics for years 1929-1942 are adjusted to eliminate this overlap.

Production figures as used herein are not comparable with figures on the number of cars installed as reported in statistics issued by the A. A. R. as these latter include, in addition to new units acquired, cars re-built and re-written into property accounts, used units acquired, leased units returned to service, and new and used units leased from others.

The "Backlog" on December 1

Because of the early publication date of this summary of orders and deliveries, the latest available figures showing the total backlog of cars on order and status of the car-building program were as of December 1, 1943. As of December 1, there were approximately 40,640 cars on order and undelivered for domestic service or about 9,000 more than were delivered during the entire year. These cars were divided 15,990 on order with railroad shops and 24,650 with contract car builders and comprised 16,100 box, 15,100 hopper, 5,900 gondola, 1,400 flat, 200 stock, 270 tank, 1,250 refrigerator, and 420 caboose cars.

Under the War Production Board's controlled materials plan, freight cars are authorized for construction in advance from future materials' allotments. This procedure aids car-building plants in planning production schedules and tends to hold down the accumulation of a large backlog of unauthorized orders. Thus, of the total backlog of 40,640 cars, only about 4,800 were without WPB authority to build, with the remaining 35,840 made up of cars scheduled for delivery as far ahead as the first quarter of 1945.

Included in the 35,840 cars authorized but undelivered are 770 cars remaining to be shipped of the WPB's 20,000-car program for the first six months of 1943; 5,050 remaining of the number authorized by the WPB out of steel allotted for the third quarter, 1943; 10,160 remaining of WPB authorizations from fourth quarter, 1943 materials; 10,250 released from authorized advance allotments of steel for the first quarter, 1944; 6,680 authorized from second quarter, 1944 materials; 2,130 from third quarter, 1944 materials and 800 from fourth quarter, 1944 materials. The authorizations cover 12,425 box, 14,710 hopper, 5,575 gondola, 1,390 flat, 270 tank, 1,050 refrigerator and 420 caboose cars which are divided in total, 15,020 with railroad shops and 20,820 with contract builders. Due to the natural time-lag before allotted materials arrive at car-building plants and can be converted into completed cars, many of the cars authorized from third and fourth quarter, 1944 materials will be delivered in 1945.

Production Program for 1944

During December the War Production Board announced a 1944 building program of 50,000 cars of which 30,000 will be of all-steel construction rather than of the composite type heretofore required. (Deliveries of all-steel cars are expected to begin about mid-year). Included in the 50,000 car program are the 35,840 cars presently authorized and the 4,800 awaiting WPB release and it is expected that orders for the balance will be quickly placed upon extension of the five-year amortization plan to railway equipment.

The appended tables contain a detailed statement of domestic orders for new freight cars, or those having new bodies, placed during 1942 by railroads, industrial companies and private car lines; also, those placed for export and in Canada. Cars ordered but without WPB authority to build are marked with an asterisk in the "Date of Delivery" column.

Table IV—Freight Cars Built in 1929-1943

Year	Domestic	U. S. Export	Total U. S.	Canadian
1943	31,591	1,135	32,726	4,320
1942	59,571	4,908	64,479	867
1941	79,396	2,312	81,708	5,135*
1940	52,929	1,622	54,551	2,052
1939	24,876	181	25,057	2,206*
1938	17,473	549	18,022	5,115*
1937	75,003	1,121	76,124	6,595
1936	45,822	493	46,315	1,800
1935	6,933	888	7,821	801
1934	25,176	151	25,327	....
1933	2,160	151	2,311	550
1932	3,254	82	3,336	....
1931	13,205	409	13,614	4,633
1930	75,188	1,909	77,097	6,923
1929	82,240	3,168	85,408	8,557

* Includes Canadian export deliveries.

Note.—1943 and 1942 domestic and U. S. export totals exclude freight cars built for the U. S. Government and lend-lease.

The list of orders was compiled from information furnished to the *Railway Age* by the railroads, private car lines, and other purchasers of cars in response to requests for this information. Data thus compiled were then checked against lists of orders supplied by the car-builders. Production figures were secured in response to requests to the freight car builders. As in former years, the *Railway Age* is indebted to the American Railway Car Institute for assistance in making available reports of companies affiliated with that organization.

The *Railway Age* cannot guarantee the listing of orders to be complete or the statistical accuracy of the production figures. However, it is believed that such omissions as occur will be found to be relatively small and unimportant, and will not vitiate the value of the figures, particularly with respect to comparisons with preceding years.

The tabulation of 1943's freight car orders begins on the following page.

Freight Car Orders in 1943

Railroad Orders—For Service in the United States

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Alton	100	Hopper	100,000	33	0	Composite	40,800	July	November	General American
	250	Gondola	100,000	41	6	Composite	46,200	July	Apr. '44	General American
	750	Hopper	100,000	33	0	Steel	41,700	May	Apr. '44	Amer. Car & Fdy.
	500	Box	100,000	40	6	Composite	46,000	July	Apr. '44	Pullman-Standard
Ann Arbor	25	Hopper	100,000	33	0	Composite	42,000	September	Jan.-Mar. '44	Wabash Shops
Atchison, Topeka & Santa Fe	200	Hopper	100,000	33	0	Composite	40,800	July	Dec.-Jan. '44	General American
	200	Gondola	140,000	52	6	Composite	53,900	July	Nov.-Dec.	General American
	600	Box	100,000	40	6	Composite	45,300	July	Jan.-Feb. '44	General American
	300	Hopper	140,000	40	8	Steel	54,500	January	August	Amer. Car & Fdy.
	400	Hopper	140,000	..	..	Composite	.....	September	June '44	Amer. Car & Fdy.
	200	Hopper	100,000	33	0	Composite	39,300	January	July-Aug.	Pullman-Standard
	200	Gondola	140,000	52	6	Composite	53,800	January	June-July	Pullman-Standard
	200	Flat	140,000	53	6	Composite	.....	August	1944	Pullman-Standard
	400	Box	100,000	50	6	Composite	.....	August	1944	Pullman-Standard
	100	Caboose	60,000	28	2	Steel	.....	September	Jan.-Mar. '44	Company Shops
Atlantic Coast Line	300	Hopper	100,000	33	0	Composite	40,400	January	November	Bethlehem
	300	Gondola	100,000	41	6	Composite	43,900	January	Sept.-Oct.	Bethlehem
	300	Flat	100,000	53	6	Steel	50,000	January	July-Oct.	Pullman-Standard
(Charleston & Western Carolina)	6	Caboose	60,000	29	9	Steel	.....	January	July	Company Shops
Baltimore & Ohio	1,000	Hopper	100,000	33	0	Composite	40,700	September	July '44	Bethlehem
Boston & Maine	10	Caboose	.....	..	..	Steel	.....	November	1944	Pullman-Standard
Central of Georgia	165	Pulpwood	100,000	47	3½	Composite	56,000	July	December	Greenville
	100	Hopper	100,000	..	..	Composite	.....	March	*	Amer. Car & Fdy.
	50	Hopper	100,000	33	0	Composite	41,600	January	Oct.-Nov.	Pullman-Standard
	250	Box	100,000	40	3	Composite	47,000	March	Apr. '44	Pullman-Standard
Central of New Jersey	1,000	Gondola	140,000	52	6	Composite	54,300	September	Apr.-June '44	Bethlehem
	100	Flat	140,000	53	6	Composite	62,300	October	July '44	Greenville
	500	Hopper	100,000	33	0	Composite	41,000	September	July '44	Pressed Steel
Chesapeake & Ohio	1,130	Hopper	100,000	33	0	Composite	40,800	February	Aug.-Nov.	General American
	620	Hopper	100,000	33	0	Composite	40,600	January	Feb. '44	Amer. Car & Fdy.
	125	Gondola	100,000	48	6	Steel	49,000	August	*	Amer. Car & Fdy.
	100	Flat	100,000	53	6	Composite	52,000	August	Mar. '44	Ralston Steel
	1,250	Hopper	100,000	33	0	Composite	41,200	February	Aug.-Dec.	Pullman-Standard
Chicago & North Western	500	Ore	140,000	21	1¾	Steel	40,000	August	Apr.-May '44	Bethlehem
	250	Flat	100,000	53	6	Composite	48,000	August	Jan. '44	Pullman-Standard
Chicago, Burlington & Quincy	1,000	Hopper	100,000	33	0	Composite	40,000	August	Jan.-May '44	Company Shops
	500	S. S. Box	100,000	40	6	Composite	46,500	August	June-July '44	Company Shops
(Fort Worth & Denver City	500	S. S. Box	100,000	40	6	Composite	46,500	August	Aug.-Sept. '44	Company Shops
Chicago Great Western	100	Gondola	.....	..	..	.....	.....	October	....	Pullman-Standard
	100	Flat	100,000	53	6	Composite	.....	August	Feb. '44	Pullman-Standard
	100	Box	100,000	40	3	Steel	.....	October	1944	Pullman-Standard
Chicago, Milwaukee, St. Paul & Pacific	735	Gondola	100,000	41	6	Composite	.....	March	September	Company Shops
	400	Flat	100,000	53	6	Steel	.....	March	November	Company Shops
	300	Auto	100,000	40	6	Steel	.....	July	December	Company Shops
	200	Auto	100,000	40	6	Steel	.....	August	Jan. '44	Company Shops
	500	Hopper	100,000	33	0	Steel	.....	August	Feb.-Apr. '44	Company Shops
	25	Caboose	.....	35	3½	Steel	.....	October	May '44	Company Shops
	1,000	Box	100,000	40	6	Steel	.....	October	May-Oct. '44	Company Shops
	500	Box	100,000	50	6	Steel	.....	October	Oct.-Dec. '44	Company Shops
	35	Gondola	140,000	65	6	Steel	.....	November	May '44	Company Shops
Chicago, Rock Island & Pacific	400	Gondola	140,000	52	6	Composite	52,500	January	Oct.-Nov. '44	Pressed Steel
Clinchfield	500	Hopper	100,000	33	0	Composite	49,300	March	Dec.-Jan. '44	Amer. Car & Fdy.
Delaware & Hudson	100	Hopper	100,000	31	0	Steel	41,600	August	July '44	Bethlehem
	100	Gondola	100,000	41	9	Steel	44,700	August	June-July '44	Bethlehem
Delaware, Lackawanna & Western	250	Gondola	100,000	48	6	Composite	49,000	October	June '44	Amer. Car & Fdy.
Denver & Rio Grande Western	200	Flats	100,000	53	6	Composite	51,000	April	....	Mount Vernon
Detroit, Toledo & Ironton	30	Gondola	140,000	52	6	Composite	60,600	July	Apr. '44	Greenville
Elgin, Joliet & Eastern	300	Hopper	140,000	39	6⅞	Steel	60,300	January	October	Ralston Steel
	440	Gondola	100,000	48	6	Composite	47,100	January	December	Ralston Steel
	200	Hopper	140,000	39	6⅞	Steel	60,300	July	Apr. '44	Ralston Steel
Grand Trunk Western	300	Gondola	140,000	52	6	Composite	53,700	October	June '44	Pressed Steel
Gulf, Mobile & Ohio	125	Gondola	100,000	41	6	Composite	45,000	August	May '44	Amer. Car & Fdy.
Illinois Central	600	Hopper	100,000	33	0	Composite	40,000	October	Jan.-July '44	Company Shops
Lehigh Valley	900	Hopper	110,000	33	0	Steel	38,000	July	Sept. '44	Bethlehem
	250	Gondola	140,000	52	6	Composite	55,000	July	Dec.-Jan. '44	Bethlehem
	15	Caboose	.....	24	4½	Steel	44,000	March	June '44	Company Shops
Louisiana & Arkansas	7	Caboose	.....	..	..	Steel	.....	1943	....	Company Shops
	1	Box	200,000	40	6	Composite	.....	January	March	Company Shops
Louisville & Nashville	1,000	Hopper	100,000	33	0	Composite	39,700	February	Sept.-Dec.	Pullman-Standard
Midland Valley	75	Gondola	100,000	41	6	Composite	46,200	August	....	Mount Vernon
	25	Hopper	140,000	40	8	Composite	48,200	August	Feb. '44	Amer. Car & Fdy.
Minneapolis & St. Louis	12	Caboose	60,000	25	0	Composite	38,800	January	June	Company Shops
Missouri-Kansas-Texas	157	S. S. Box	80,000	40	6	Steel	45,500	September	December	Company Shops
	3	Stock	80,000	40	6	Steel	42,900	February	July	Company Shops
	10	Caboose	.....	34	11¼	Steel	50,000	March	April	Company Shops
	15	Co. Service	.....	39	7	Steel	49,800	February	June	Company Shops
	29	Co. Service	.....	39	7	Steel	49,800	February	*	Company Shops
Missouri Pacific	1,600	Hopper	140,000	40	8	Composite	48,200	January	Feb. '44	Amer. Car & Fdy.
	100	Flat	100,000	54	2	Composite	53,200	January	July	Amer. Car & Fdy.
New York Central	200	Flat	140,000	53	6	Steel	60,300	January	June	Despatch Shops
	700	H.S. Gondola	148,000	52	6	Composite	54,500	January	August	Despatch Shops
	1	Spec. Flat	396,000	46	3	Steel	105,600	April	October	Despatch Shops
(Indiana Harbor Belt)	100	Flat	140,000	53	6	Steel	60,300	January	May	Despatch Shops
	300	H.S. Gondola	140,000	52	6	Composite	54,000	January	October	Despatch Shops
	600	Box	110,000	40	6	Steel	46,800	December	Feb. '44	Despatch Shops
	400	Box	110,000	40	6	Composite	45,300	December	Apr. '44	Despatch Shops
New York, Chicago & St. Louis	300	S. S. Box	100,000	40	6	Composite	44,000	August	May '44	General American
	50	Gondola	140,000	52	6	Composite	60,600	August	May '44	Greenville
	500	Hopper	100,000	33	0	Composite	40,600	August	Aug. '44	Amer. Car & Fdy.
	25	Cov. Hopper	140,000	29	3	Steel	52,300	August	*	Amer. Car & Fdy.
	200	S. S. Box	100,000	40	3	Composite	46,500	August	Feb. '44	Pullman-Standard

* Not authorized for building by War Production Board

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
New York, New Haven & Hartford	100	Flat	140,000	53	6	Composite	62,300	September	June '44	Greenville
	50	Caboose	.....	27	1⅜	Steel	50,000	October	1944	Pullman-Standard
Norfolk & Western	500	Hopper	140,000	41	8	Composite	50,500	April	Jan.-Feb. '44	Bethlehem
	500	Hopper	140,000	40	8	Composite	49,000	April	Jan.-Mar. '44	Virginia Bridge
Northern Pacific	300	Flat	100,000	54	2	Steel	49,500	January	August	Amer. Car & Fdy.
	250	Hopper	140,000	41	7¾	Composite	54,900	January	September	Amer. Car & Fdy.
	250	S. S. Box	100,000	40	6	Composite	45,500	October	May '44	Pressed Steel
	750	S. S. Box	100,000	40	3	Composite	41,600	October	May '44	Pullman-Standard
Pennsylvania	1,000	Gondola	140,000	52	6	Composite	56,800	January	August	Company Shops
	1	Flat	375,000	44	0	Steel	106,200	February	April	Company Shops
Pere Marquette	100	Flat	140,000	53	6	Composite	62,300	August	May-June '44	Greenville
	100	Gondola	140,000	52	6	Composite	60,600	August	Apr.-May '44	Greenville
	25	Cov. Hopper	140,000	29	3	Steel	52,300	August	*	Amer. Car & Fdy.
Pittsburgh & West Virginia	5	Caboose	.....	..	..	Steel	42,600	1943	Apr. '44	Company Shops
Reading	1,000	Hopper	110,000	31	0	Composite	42,700	October	1943-44	Company Shops
	50	Caboose	.....	24	4½	Steel	42,400	October	1944	Company Shops
	1,000	Gondola	140,000	52	6	Composite	56,600	October	1944-45	Company Shops
St. Louis-San Francisco	250	Gondola	200,000	41	6	Composite	46,000	October	1944	Company Shops
St. Louis Southwestern	12	Caboose	60,000	29	0	Steel Underframe	41,500	1943	May-Aug.	Company Shops
Seaboard Air Line	200	S. S. Box	100,000	40	3	Steel	.....	October	1944	Pullman-Standard
	200	Hopper	140,000	40	8	Steel	.....	October	1944	Pullman-Standard
Southern Pacific	300	Gondola	100,000	41	0	Composite	.....	September	Apr. '44	Mount Vernon
(Texas & New Orleans)	200	Gondola	100,000	41	6	Composite	45,500	September	Apr. '44	Pressed Steel
Spokane, Portland & Seattle	4	Air Dump	100,000	..	..	Steel	.....	1943	1944	Austin-Western
Terminal R. R. Association of St. Louis	35	Caboose	60,000	35	0	Steel	34,000	July	Apr.-June '44	Mount Vernon
Union Pacific	100	Caboose	60,000	36	6	Steel	51,200	November	Sept. '44	Pullman-Standard
Virginian	1,000	Hopper	110,000	33	0	Composite	42,600	May	Jan.-May '44	Company Shops
Wabash	500	Gondola	100,000	41	6	Composite	.....	September	Apr.-Dec. '44	Company Shops
	480	S. S. Box	100,000	40	6	Composite	.....	September	Jan.-Sept. '44	Company Shops
	50	Flat	140,000	53	6	Steel	.....	November	July-Sept. '44	Company Shops
	25	Cov. Hopper	140,000	29	3	Steel	.....	August	*	General American
Western Maryland	25	Flat	100,000	54	2	Composite	51,200	January	June	Amer. Car & Fdy.

Industrial and Private Car Line Orders—For Service in the United States

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Algoma Steel Corporation	6	Air Dump	140,000	..	..	Steel	.....	1943	1944	Austin-Western
American Locomotive Co.	1	Air Dump	.....	..	..	Steel	.....	October	....	Pressed Steel
American Rolling Mill Co.	10	Flat	100,000	40	6	Steel	.....	April	1944	Pullman-Standard
American Steel & Wire Co.	8	Air Dump	100,000	..	..	Steel	.....	1943	1943	Austin-Western
American Steel Foundries	4	Air Dump	140,000	..	..	Steel	.....	1943	1944	Austin-Western
Anchor Petroleum	20	Tank	10,500g	37	0	Steel	68,500	January	November	Amer. Car & Fdy.
Bethlehem Steel (Lackawanna Plant)	100	Gondola	140,000	46	6	Steel	.....	June	Oct.-Nov.	Bethlehem
Birdsboro Steel Foundry & Machine Co.	1	Flat	200,000	55	11	Steel	69,500	August	March '44	Greenville
Carnegie-Illinois Steel Corp.	10	Flat	100,000	25	9¼	Steel	43,800	June	Apr. '44	Amer. Car & Fdy.
Columbia Steel Company	26	Air Dump	100,000	..	..	Steel	.....	1943	August	Austin-Western
Cumberland Gasoline Corp.	10	Tank	11,000g	38	10½	Steel	70,720	January	1944	Amer. Car & Fdy.
Davison Chemical Company	1	Air Dump	60,000	..	..	Steel	.....	1943	1944	Austin-Western
Diamond Alkali Co.	5	Tank	60,000	..	..	Steel	.....	August	Mar. '44	General American
DuPont de Nemours, E. I. & Co.	1	Tank	7,300g	30	8	Steel	43,000	January	March	Amer. Car & Fdy.
	9	Gondola	140,000	46	10	Steel	45,890	April	August.	Amer. Car & Fdy.
	7	Gondola	140,000	46	10	Steel	45,890	September	Mar. '44	Amer. Car & Fdy.
Eastern Shore Gas Corp.	2	Tank	11,000g	38	10¼	Steel	69,000	March	November	Amer. Car & Fdy.
Ethyl Corp.	24	Tank	6000g	30	7⅛	Steel	65,500	June	December	Amer. Car & Fdy.
	18	Tank	6000g	30	7⅛	Steel	65,500	September	May '44	Amer. Car & Fdy.
	12	Tank	6000g	31	1	Steel	66,400	October	May '44	Amer. Car & Fdy.
	12	Tank	3000g	..	..	Steel	.....	June	Jan. '44	General American
	4	Tank	11,200g	..	..	Steel	.....	June	Jan. '44	General American
	12	Tank	6000g	..	..	Steel	.....	September	Apr. '44	General American
	8	Tank	6000g	..	..	Steel	.....	October	Apr. '44	General American
Fuelane Corp.	9	Tank	10,500g	37	0	Steel	67,100	January	November	Amer. Car & Fdy.
Gas Oil Products, Inc.	4	Tank	11,000g	38	10¼	Steel	69,000	April	December	Amer. Car & Fdy.
Great Lakes Steel Corp.	16	Gondola	140,000	39	11	Steel	55,000	April	December	Pressed Steel
	30	Gondola	140,000	39	11	Steel	55,000	May	Jan. '44	Pressed Steel
Holston Ordnance Works	10	Tank	10,000g	..	..	Steel	.....	October	Apr. '44	General American
(Tennessee Eastman Corp.)	2	Tank	10,000g	33	11⅜	Aluminum	39,500	September	Apr. '44	Amer. Car & Fdy.
Hooker Electro-Chemical Co.	4	Tank	8000g	..	..	Steel	.....	July	December	General American
Kaiser Co.	3	Air Dump	180,000	36	0	Steel	85,500	July	Feb. '44	Pressed Steel
Mesta Machine	1	Flat	240,000	..	..	Steel	.....	January	....	Pressed Steel
	1	Flat	400,000	..	..	Steel	.....	February	....	Pressed Steel
Michigan Limestone & Chemical	10	Air Dump	140,000	..	..	Steel	.....	1943	1943	Austin-Western
National Gas of New Jersey	6	Tank	11,000g	38	10¼	Steel	69,000	August	Jan. '44	Amer. Car & Fdy.
Oliver Iron Mining Co.	50	Air Dump	30 cu. yds.	31	7½	Steel	65,000	October	Apr.-June '44	Austin-Western
Oldbury Electro-Chemical Co.	1	Tank	3600g	..	..	Steel	.....	April	December	General American
Phillips Petroleum Co.	26	Tank	10,500g	37	0	Steel	69,700	March	December	Amer. Car & Fdy.
	25	Tank	10,500g	37	0	Steel	69,700	October	June '44	Amer. Car & Fdy.
	24	Tank	10,500g	..	..	Steel	.....	March	Nov.-Dec.	General American
Protane Corp.	9	Tank	10,500g	37	0	Steel	67,500	April	November	Amer. Car & Fdy.
Public Service of Indiana	4	Air Dump	.....	..	..	Steel	.....	October	....	Pressed Steel
Republic Steel Corp.	25	Gondola	.....	..	..	.....	.....	April	....	Pressed Steel
(for Defense Plant Corp.)	25	Hopper	140,000	41	3	Steel	54,000	April	October	Amer. Car & Fdy
	15	Flat	.....	..	..	.....	.....	March	1943	Haffner-Thrall
Republic Tank Car Co.	12	Tank	10,500g	37	0	Steel	68,500	March	Jan. '44	Amer. Car & Fdy.
Rubber Reserve Co. (for Defense Plant Corp.)	50	Tank	11,600g	38	10½	Steel	58,000	November	*	Amer. Car & Fdy.

* Not authorized for building by War Production Board

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Sheffield Steel (for Defense Plant Corp.)	2	Gondola	140,000	38	4	Steel	52,750	February	December	Pressed Steel
Shippers' Car Line	30	Tank	10,000g	34	1¼	Steel	61,000	March	Apr. '44	Amer. Car & Fdy.
	30	Tank	6000g	30	7	Steel	65,500	September	Apr. '44	Amer. Car & Fdy.
	15	Tank	10,500g	37	0	Steel	67,500	September	May '44	Amer. Car & Fdy.
Suburban Gas Co.	3	Tank	11,000g	38	10¼	Steel	69,000	March	November	Amer. Car & Fdy.
Timken Roller Bearing Co.	2	Box (Bodies)	.....	..	..	.....	.....	April	....	Pressed Steel
	25	Gondola	140,000	40	0	Steel	56,200	May	November	Amer. Car & Fdy.
Warren Petroleum Corp.	80	Tank	100,000	40	5	Steel	67,500	January	Oct.-Nov.	Amer. Car & Fdy.
	40	Tank	100,000	40	5	Steel	67,500	January	Oct.-Nov.	General American
	8	Tank	100,000	40	5	Steel	67,500	September	Mar. '44	Amer. Car & Fdy.
Weirton Steel Co.	50	Flat	200,000	34	0	Steel	52,900	July	June '44	General American

United States—Export

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Canadian Car & Fdy. Co.	3	Tank	8000g	..	..	Steel	.....	April	Jan. '44	General American
Central Ry. of Peru	20	Ore	80,000	20	6	Steel	.....	July	Feb.-Mar. '44	Bethlehem
Chile Exploration	50	Ore (Bodies)	.....	..	..	.....	.....	October	....	Pressed Steel
Estufas & Refrigerator	2	Tank	10,000g	..	..	Steel	.....	April	*	General American
F. C. del Pacifico de Nicaragua	20	Box	74,000	31	0	Steel	29,380	August	June '44	Magor
	15	Flat	60,000	36	0	Steel	20,850	August	June '44	Magor
	4	Tank	6,000g	30	6	Steel	40,400	August	June '44	Magor
Guayaquil & Quito	3	Tank	6,000g	29	2½	Steel	29,256	August	Feb. '44	Amer. Car & Fdy.
Hidro Combustible Gas Co.	3	Tank	10,000g	..	..	Steel	.....	April	*	General American
Mexican Government	110	Box	100,000	40	6	Steel	46,400	March	Jan. '44	Magor
National Railways of Colombia	75	Box	55,100	30	2¼	Composite	25,200	January	Feb. '44	Amer. Car & Fdy.
	25	Box	55,100	30	2¼	Composite	25,200	February	Jan. '44	Amer. Car & Fdy.
Standard Oil of New Jersey	5	Tank	5000g	..	..	Steel	.....	February	*	Gen. American
Tropical Oil Co.	2	Tank	6,000g	29	1	Steel	38,400	February	November	Amer. Car & Fdy
	2	Tank	6,000g	29	1	Steel	38,400	July	Feb. '44	Amer. Car & Fdy.
Union Miniere	25	Air Dump	80,000	..	..	Steel	.....	1943	1944	Austin-Western
Vanadium Corp.	5	Tank	4,900g	..	..	Steel	.....	July	Jan. '44	General American
Victoria & Minas	175	Ore	100,000	17	9¼	Steel	30,490	February	Sept.-Nov.	Pullman-Standard
	200	Ore	100,000	17	9¼	Steel	.....	August	1944	Pullman-Standard
Westinghouse Elec. & Internat'l Co.	20	Flat	100,000	50	0	Steel	64,000	June	Jan. '44	General American
	10	Box	140,000	52	4	Steel	93,000	June	Jan. '44	General American
	10	Box	100,000	50	6	Steel	63,000	June	Jan. '44	General American
	20	Box	140,000	51	5¾	Steel	83,000	June	Feb. '44	General American
	10	Box	100,000	50	4⅝	Steel	62,000	June	Feb. '44	General American
	24	Box	100,000	49	5½	Steel	99,600	October	Apr. '44	General American
	24	Box	140,000	43	5½	Steel	77,000	October	Apr. '44	General American
	10	Tank	10,000g	..	..	Steel	.....	June	Jan.-Feb. '44	General American

Canada

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Canadian General Transit	200†	Tank	8,500g	..	..	Steel	50,200	Nov., '42	June-Nov.	Can. Car & Fdy.
Canadian National	200	Flat	100,000	52	0	Steel	.....	July	....	Can. Car & Fdy.
	800	Box	80,000	40	6	Steel	.....	November	....	Can. Car & Fdy.
	1,350	Box	80,000	..	..	Steel	.....	June	Jan.-Apr. '44	National Steel
	700	Box	80,000	..	..	Steel	.....	November	....	National Steel
	250	Box	.....	..	..	Steel	.....	October	....	Eastern Steel
	750	Hopper	.....	..	..	Steel	.....	October	....	Eastern Steel
	200	Refrigerator	.....	..	..	Steel	.....	October	....	Company Shops
Canadian Pacific	650	O. S. Box	100,000	40	6	Steel	44,900	May	December	Can. Car & Fdy.
	500	Gondola	140,000	52	6¼	Steel	53,700	February	December	National Steel
	50	Caboose	.....	28	4½	Steel	40,100	April	October	Company Shops
Dept. of Munitions & Supply	100	Tank	8,560g	33	7½	Steel	48,800	June	July	Can. Car & Fdy.
	100	Tank	8,520g	33	7½	Steel	48,800	June	November	Can. Car & Fdy.

* Not authorized for building by War Production Board
† 1942 totals have been adjusted to include these cars which were not reported last year.

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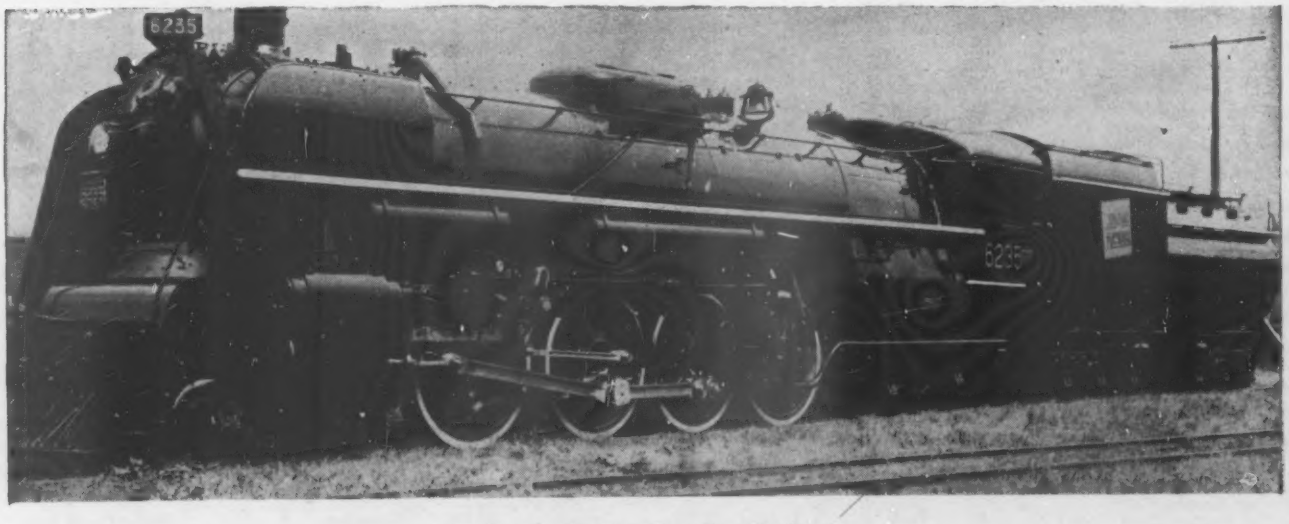


New Power for the Canadian National

Signaling Construction Increased in 1943

More interlocking, spring switches and c. t. c., but less highway crossing protection

Above—The D. & R. G. W. Will Soon Finish Final 49-Miles of the 284 Miles of C. T. C., between Dotsero, Col., and Helper, Utah.

Right—C. T. C. Keeps Heavy Trains Moving on Grades in the Ozark Mountains on the St. L.-S. F.

By John H. Dunn

Signaling Editor

THE railroads of the United States and Canada placed more signaling facilities in service during 1943 than in any of the ten previous years, a total of 8,752 units in 1943, as compared with 6,381 units in 1942, 6,966 units in 1941 and 7,259 units in 1940. The fact that so large a volume of signaling was placed in service in 1943 results from two circumstances. In the first place, many of the larger projects, especially interlockings, had been under way for some time and the materials, to a large extent, were manufactured before the war began. A second consideration is that many new signaling projects, especially centralized traffic control, have been planned and rushed to completion since we entered the war because of the assistance that these facilities could give in facilitating train operations on lines which are now handling an unusually heavy war traffic. On the other hand, some construction, such as highway crossing protection, has been held to a minimum.

Interlocking Construction

In 1943, the number of operative signal units and interlocked switches installed at new interlockings, or as additions to existing plants, totaled 2,313 units, compared with 1,417 units completed in 1942 and 1,291 units in 1941. However, unless properly analyzed, these figures may create an erroneous impression that a great

Comparison of Annual Signaling Construction

	1943	1942	1941	1940
Automatic Block Signals	..	1,421	1,407	1,017
Signals on new projects	1,139	..	..	..
Signals installed as replacements	1,551	..	..	..
Interlockings				
Signals and switches at new plants	1,498	785	518	1,024
Signals and switches added at rebuilt plants	760	554	693	734
Signals and switches at automatic plants	55	78	80	125
Spring Switches				
Spring buffer mechanisms	448	284	275	294
Mechanical facing-point locks	88	126	159	97
Signals at spring switches	498	384	354	336
Centralized Traffic Control				
Power switch machines	463	263	190	121
Semi-automatic signals	1,775	1,030	675	375
Classification Yards				
Car retarders	..	51	..	11
Power switch machines	..	108	..	19
Highway Crossing Protection				
Protective Units	477	1,297	2,615	3,006
Totals	8,752	6,381	6,966	7,159

Typical Dual-Control Power Switch Machine on the M. P.

deal of new interlocking construction was done in 1943. With respect to the larger projects, the fact is that only those plants were constructed which were necessary. The extensive interlockings at Montreal, Que., and St. Lambert on the Canadian National were required in order to utilize the tracks leading to the new Central Station in Montreal. The new interlocking at Birmingham, Ala., was part of a project to replace two old interlockings and to relay the rail throughout the terminal; practically the same statements apply with reference to the electric interlocking on the Illinois Central at Chicago. The interlocking on the New York Central at Herkimer, N. Y., was installed as a part of a section of new line which had been planned and was well under way prior to our entry into the war. In view of the fact that many of the interlockings placed in service during 1943 were carryovers from pre-war, it would appear that the number of large interlockings to be constructed in 1944 will be much smaller than for any recent year.

New Interlockings Constructed in 1943

Including Remote Control Plants Controlled by Machines Including Mechanical Locking Between Levers

Railroad	Location	Number of Signal Operative Units	Number of switches or Derails Operated by: Electric Machine	Electro-Pneumatic	Mechanical Connection	Manufacturer
A. T. & S. F.	Stockton, Cal.	24	29	..	..	G.R.S.
A. C. L.	McBath, S. C.	6	..	..	..	Union
B. & O.	Potomac River, D. C.	6	..	..	..	G.R.S.
	Aiken, Md.	8	..	..	7	....
	Boyd, Md.	8	..	..	6	Union
	Hyattsville, Md.	14	5	..	..	G.R.S.
	Keyser, W. Va.	11	..	..	11	....
	Ft. Meade Jct., Md.	6	..	..	4	....
C. & O.	Ewell, Va.	13	9	..	..	....
I. C.	Weldon, Ill.	21	28	..	..	G.R.S.
L. & H. R.	Andover, N. J.	5	..	..	..	G.R.S.
N. Y. C. & St. L.	Blasdell, N. Y.	17	..	..	..	Union
Penna.	Quarry, Md.	5	1	..	..	Union
	Severn, Md.	8	..	4	..	Union
	Short Lane, Md.	8	..	3	..	Union
	Bay View, Md.	6	..	32	..	Union
	Urban, Ohio	8	..	..	4	Union
Total		174	72	39	32	

During 1943, centralized traffic control was placed in service on 1,177 miles of tracks, including 463 power switches and 1,775 semi-automatic signals, which compare with 807 track miles, 263 switches and 1,030 signals installed in 1942, which was the maximum record up to that time. The most extensive single centralized traffic control project completed in 1943 was on 171 miles of single track between Las Vegas, Nev., and Yermo, Cal., on the Union Pacific. On a project 178 miles long, between Montgomery, Ala., and Mobile, the Louisville & Nashville completed 117 miles during 1943. The Denver & Rio Grande Western installed C. T. C. on 127 miles of single track between Agate, Utah, and Helper. This latter project, with that under construction between Grand Junction, Colo., and Agate 49 miles, and 108 miles

Rebuilt Interlockings Constructed in 1943

Including Remote Control Plants Controlled by Machines Using Miniature Levers or Push Buttons With No Mechanical Locking

Railroad	Location	Number of Signal Operative Units	Number of switches or derails Operated by: Electric Machines	Electro-Pneumatic	Manufacturer
D. L. & W.	Nay Aug, Pa.	4	4	..	Union
	Lincoln Park	8	3	..	Union
N. Y. C.	P. & B. Jct., N. Y.	9	3	..	G.R.S.
	Utica, N. Y	87	62	..	G.R.S.
	Schenectady, N. Y.	36	18	..	G.R.S.
C. C. C. & St. L.	Sanford, Ind.	4	1	..	G.R.S.
	Vermillion, Ill.	4	1	..	G.R.S.
	Paris, Ill.	4	1	..	G.R.S.
	Dudley, Ill.	4	1	..	G.R.S.
	Kansas, Ill.	4	1	..	G.R.S.
	Ashmore, Ill.	4	1	..	G.R.S.
	Starr, Ill.	5	2	..	G.R.S.
	Windsor, Ill.	4	1	..	G.R.S.
	Middlesworth, Ill.	4	1	..	G.R.S.
	Moulton, Ill.	4	1	..	G.R.S.
	Tower Hill, Ill.	5	2	..	G.R.S.
N. & W.	Devon, W. Va.	12	..	2	Union
	Gallia Street, Ohio	4	..	1	Union
Penna.	Brady, Pa.	9	4	..	Union
	Logansport, Ind.	8	8	..	Union
	Smithboro, Ill.	12	8	..	Union
	Vandalia, Ill.	13	6	..	Union
	Summit, Ind.	4	2	..	Union
	Anderson, Ind.	4	..	..	Union
	Davis, Ind.	4	2	..	Union
Reading	Ewing, N. J.	..	1	..	Union
Total		260	134	3	

461 Power Switch Machines Were Installed in C. T. C. Territories in 1943

Automatic Interlockings

Railroad	Location	Number of Signals	Manufacturer
A. & S.	East St. Louis, Ill.	8	Unim
A. T. & S. F.	Garland, Tex.	7	Union
B. & M.	Greenfield, Mass.	1*	G.R.S.
C. M. St. P. & P.	Green Bay, Wis.	4	Union
G. M. & O.	Percy, Ill.	6	G.R.S.
G. N.	Gassman Bridge, N. D.	4	G.R.S.
		1*	
M-K-T	Whitewright, Tex.	6	Union
U. P.	Parker, Wash.	4	Union
W. & L. E.	Massillon, Ohio	7	Union
W. P.	Globe, Cal.	7	Union
Totals		53	
		2*	
		55	

Legend: * Electric switch machines.

between Grand Junction and Dotsero, Colo., which was completed in 1942, makes a total of 284 miles of C. T. C. continuous between Dotsero and Helper.

During 1943, the Chicago, Rock Island & Pacific has been installing centralized traffic control and continuously controlled cab signaling on 165 miles of double track between Blue Island, Ill. (Chicago), and Rock Island. A feature of this project is that both tracks are signaled for train movements in both directions, to further increase the track capacity. Of the entire project, work had been completed and placed in service on 85.1

Rebuilt Interlockings Constructed in 1943

Including Remote Control Plants Controlled by Machines
Including Mechanical Locking Between Levers

Railroad	Location	Number of Signal Operative Units	Number of switches or Derails Operated by: Electric Machine	Electro-Pneumatic	Mechanical Connection	Manufacturer
B. & M.	Barber, Mass.	11	..	..	..	G.R.S.
C. & O.	Fulton, Va.	13	4	4	..	Union
C. M. St. P. & P.	Lake, Wis.	0	1	..	..	G.R.S.
	Linby, Ia.	2	..	..	3	Union
G. N.	Surrey, N. D.	7	4	..	..	G.R.S.
G. M. & O.	Cairo, Ill.	5	..	..	4	G.R.S.
L. & N.	Black Creek, Ala.	12	..	..	7	G.R.S.
N. & W.	Suffolk, Va.	2	..	..	..	Union
	Roanoke, Va.	1	..	..	..	Union
	Kenova, W. Va.	5	..	..	..	Union
P. E.	Badger Ave., Cal.	2	2	..	..	G.R.S.
Penna.	Odenton, Md.	11	..	10	..	Union
	Leetsdale, Pa.	15	..	15	..	Union
	Hobart, Ind.	10	2	..	4	Union
	Indiana Harbor, Ind.	1	1	..	..	G.R.S.
	Wanatah, Ind.	3	1	..	..	Union
	Hamlet, Ind.	4	1	..	..	Union
	Bucyrus, Ohio	5	5	..	..	Union
	Dunkirk, Ohio	8	2	..	1	Union
	Tiffin, Ohio	5	..	..	2	Union
	Indianapolis, Ind.	1	..	..	1	Union
	Loveland, Ohio	3	..	..	..	Union
	Calumet Park, Ill.	1	..	..	1	Union
T. & P.	Ft. Worth, Tex.	83	60	..	..	G.R.S.
W. M.	Baltimore, Md.	8	..	..	10	Union
Total		218	83	29	33	

Highway-Railroad Grade Crossing Protection Installed During 1943

Railroad	No. of Crossings	Source of Funds: Railroad	Public Funds of Any Source	Joint Railroad and Public Funds	Total No. of Protective Units	No. of Wig-Wag Signals	No. of Flashing-Light Signals	No. of Rotating Disk Stop Sign Signals and Flashing Lights	No. of Traffic Type Stop-and-Go Crossing Signals	No. of Electrically Operated Gates
Alton	5	1	4	..	20	..	12	..	..	8
A. & S.	1	..	1	..	2	..	2	..	..	..
A. T. & S. F.	17	2	15	..	34	1	31	..	..	2
A. C. L.	5	..	5	..	14	..	12	..	..	2
B. & O.	14	8	6	..	36	..	30	..	..	6
B. & M.	2	1	1	..	3	..	2	..	1	..
C. P.	5	..	..	5	10	2	8	..	..	..
C. N.	7	2	4	1	17	1	16	..	..	..
G. T. W.	2	..	2	..	8	..	4	..	..	4
C. of G.	3	3	..	..	6	..	6	..	..	..
C. R. R. of N. J.	1	1	..	..	2	..	2	..	..	..
C. V.	1	..	1	..	2	..	2	..	..	..
C. & O.	2	..	2	..	4	..	4	..	..	..
C. & E. I.	1	..	1	..	2	..	..	..	..	2
C. & N. W.	2	2	..	..	4	..	..	4	..	..
C. B. & Q.	4	1	3	..	8	..	6	..	..	..
C. I. & L.	2	2	..	..	4	..	4	..	..	..
C. M. St. P. & P.	12	9	3	..	23	5	9	3	..	6
C. R. I. & P.	6	2	4	..	10	..	5	1	..	4
C. St. P. M. & O.	1	1	..	..	2	..	..	2	..	..
C. & S.	1	1	..	..	2	..	2	..	..	..
D. & R. G. W.	3	1	2	..	16	..	8	..	8	..
Erie	3	1	2	..	7	..	7	..	..	..
G. N.	6	3	3	..	12	..	..	12	..	..
I. C.	17	8	9	..	37	5	24	..	..	8
G. & S. I.	1	1	..	..	2	..	2	..	..	..
Y. & M. V.	1	..	1	..	2	..	2	..	..	..
I. T.	1	1	..	..	2	..	2	..	..	..
L. & H.	1	1	..	..	8	..	8	..	..	..
L. & N.	5	3	2	..	14	..	10	..	..	4
M. St. P. & S. S. M.	1	1	..	..	1	1	..	..	..	..
M-K-T	1	..	1	..	2	..	2	..	..	..
M. P.	8	..	8	..	17	..	15	..	..	2
N. C. & St. L.	1	..	1	..	2	..	2	..	..	..
N. Y. C.	1	..	1	..	2	..	2	..	..	..
C. C. C. & St. L.	4	..	4	..	6	..	4	..	..	2
P. & E. I.	1	..	1	..	4	..	2	..	..	2
N. Y. C. & St. L.	4	..	4	..	8	..	8	..	..	..
N. Y. N. H. & H.	2	1	1	..	6	..	2	..	..	4
N. P.	1	1	..	..	2	..	2	..	..	..
N. & W.	2	2	..	..	5	4	1	..	..	..
P. E.	9	4	5	..	18	8	10	..	..	..
Penna.	7	4	3	..	24	..	14	..	..	10
P. M.	1	..	..	1	2	..	2	..	..	..
S. P.	11	3	8	..	23	9	10	2	..	2
T. & N. O.	4	2	2	..	8	..	8	..	..	..
Southern	3	3	..	..	6	..	6	..	..	..
N. O. T.	1	..	1	..	4	..	4	..	..	..
T. & P.	1	1	..	..	2	..	2	..	..	..
U. P.	6	2	4	..	12	2	10	..	..	..
Virginian	1	1	..	..	2	..	..	..	..	2
W. M.	2	1	..	1	4	..	4	..	..	..
W. P.	1	..	1	..	2	..	2	..	..	..
W. & L. E.	1	..	1	..	2	..	2	..	..	..
Total	206	81	117	8	477	38	334	24	9	70

New Interlockings Constructed in 1943

Including Remote Control Plants Controlled by Machines Using Miniature Levers or Push Buttons With No Mechanical Locking

Railroad	Location	Number of Signal Operative Units	Number of switches or derails operated by: Electric Machine	Number of switches or derails operated by: Electro-Pneumatic	Manufacturer
A. T. & S. F.	Texico, N. M.	22	12	..	Union
	Clovis, N. M.	8	4	..	Union
B. T.	Birmingham, Ala.	52	52	..	G.R.S.
C. N.	Montreal, Que.	247	115	..	Union
	St. Lambert	76	31	..	G.R.S.
	Prescott, Ont.	4	1	..	G.R.S.
C. of G.	Henry Allen, Ala.	3	1	..	G.R.S.
C. R. I. & P.	Dalhart, Tex.	4	1	..	Union
Chi. Sub.	17th St., Chicago	17	..	9	Union
	13th St., Chicago	10	..	3	Union
	Armitage Ave., Chicago	34	..	18	Union
G. N.	Hibbing, Minn.	9	3	..	G.R.S.
N. Y. C.	Herkimer, N. Y.	47	18	..	G.R.S.
C. C. C. & St. L.	Paris, Ill.	4	1	..	G.R.S.
	Kansas, Ill.	5	1	..	G.R.S.
	Starr, Ill.	5	2	..	G.R.S.
P. E.	Island Jct., Cal.	26	7	..	Union
B. & M.	East Switch, Mass.	9	3*	..	G.R.S.
	Ayer, Mass.	9	4*	..	G.R.S.
	Lawrence, Mass.	6	..	..	G.R.S.
	Spragues, Mass.	..	14*	..	Union
	Draw No. 8, Mass.	..	2*	..	G.R.S.
Penna.	Tome, Md.	6	1	..	Union
	River, Md.	12	11	..	Union
	Columbia, Pa.	..	2	..	Union
	Madison, Pa.	3	1	..	Union
	Parker, Pa.	4	2	..	
	Birch, Pa.	3	1	..	
	Woods, Pa.	3	2	..	
	Sandy, Pa.	4	1	..	
	Drake, Pa.	3	4	..	
	Van Wert, Ohio	14	4	..	
	Pierron, Ill.	12	4	..	Union
	Greenfield, Ind.	5	2	..	Union
	Crestline, Ohio	4	3	..	Union
	Charlotteville, Ind.	9	3	1	Union
S. A. L.	Colon, N. C.	2	1	..	Union
	Sanford, N. C.	2	1	..	Union
	Vass, N. C.	2	1	..	Union
	Franklinton, N. C.	4	2	..	Union
	Henderson, N. C.	4	2	..	Union
S. P.	Eder, Cal.	5	2	..	Union
	Saugns, Cal.	8	2	..	Union
Southern	Leadvale, Tenn.	6	1	..	G.R.S.
Virginian	Jarratt, Va.	10	1	..	G.R.S.
Total		724	303 23* 326	31	

Legend:
In "Electric Machines" column: * = electric locks on hand-throw switches.

Spring Switches Installed During 1943

Railroad	Total No. of Spring Switches Installed	Classification as to Application: End of Passing Track	End of Double Track	Junction	Yard Track	Total No. Equipped With Facing Point Lock	Signal Protection: High Signals	Low Signals
A. & S.	1	1	..	..	..	..	..	..
A. T. & S. F.	23	22	..	..	1	..	8	6
A. C. L.	2	..	..	..	2	2	2	..
B. & O.	5	1	4	..	..	..	4	2
B. & G.	1	1	..	..	..	..	1	..
B. & M.	1	..	..	..	1	..	..	1
C. N.	14	13	..	..	1	..	1	14
C. P.	1	..	..	..	1	1	1	..
C. of G.	3	2	..	1	..	2	5	1
C. R. R. of N. J.	1	..	1	..	..	..	..	..
C. & I. M.	2	2	..	..	..	..	..	2
C. & N. W.	4	..	..	3	1	..	8	5
C. B. & Q.	10	8	..	..	2	..	18	2
C. I. & L.	10	10	..	..	..	..	..	..
C. M. St. P. & P.	7	5	2	..	..	..	7	..
C. N. S. & M.	2	2	..	..	..	1	1	1
C. R. I. & P.	3	3	..	..	..	3	1	5
D. & H.	1	..	1	..	..	1	2	..
D. L. & W.	3	..	..	3	..	..	6	1
D. & R. G.	5	4	1	..	..	1	3	5
D. M. & I. R.	2	..	..	2	..	..	..	..
Erie	1	1	..	..	..	1	..	1
G. N.	15	13	1	..	1	15	29	1
I. C.	30	25	2X	1	2	..	26	4
Y. & M. V.	25	23	..	2	..	..	23	2
L. & N.	59	59	..	..	1	..	116	3
M. C.	1	..	1	..	..	..	2	..
M. St. P. & S. S. M.	2	2	..	..	..	1	3	1
M-K-T	2	2	..	..	..	..	..	..
M. P.	5	2	..	1	2	5	6	..
N. C. & St. L.	2	..	1	..	1	..	..	2
N. Y. C. & St. L.	2	2	..	..	..	2	2	..
N. Y. O. & W.	1	..	1	..	..	..	1	..
N. & W.	3	..	..	..	3	2	8	..
N. P.	8	..	4	3	1	..	2	3
N. W. P.	1	..	..	1	..	..	..	1
P. E.	13	2X	2	9	..	1	3	4
Penna.	5	5	..	..	..	4	7	..
R. F. & P.	3	..	..	..	3	..	..	..
St. L. S.	3	3	..	..	..	3	4	..
S. A. L.	7	7	..	..	..	7	13	1
Southern	59	58	..	1	..	..	2	..
C. N. O. & T. P.	2	2	..	..	..	..	..	..
A. G. S.	2	2	..	..	..	..	..	..
G. S. & F.	32	32	..	..	..	..	..	6
N. O. & N.	3	3	..	..	..	..	..	..
N. O. T.	2	2	..	..	..	..	1	1
S. P.	35	31	2	..	2	34	72	12
N. P.	1	..	..	1	..	..	..	1
T. & N. O.	7	4	2	1	..	..	..	..
T. & P.	7	7	..	..	..	..	7	8
T. H. & B.	1	..	..	..	1*	..	..	1
U. P.	4	4	..	..	..	2	..	4
Virginian	4	..	4	..	..	..	1	1
Totals	448	365	29	29	26	88	396	102

Legend:
X = crossover.
* = spring mechanism on derail.

road miles at the end of 1943. On other railroads, activities in train control and cab signaling consisted of applying equipment to new locomotives.

Automatic Block

The most extensive automatic block signal project placed in service during 1943 was on 250 miles of single track between Chapleau, Ont., and Schreiber, on the Canadian Pacific. This installation was planned and the signals at the turnouts were so located that centralized traffic control can be added with a minimum of changes. The 52.8 miles of automatic block installed between Red Bank, Pa., and Oil City on the Pennsylvania is a part of a centralized traffic control project. The various other automatic signaling projects on the Pennsylvania and on the Baltimore & Ohio, which are marked with an asterisk in the accompanying table, consist of the addition of signaling to permit train movements in both directions on tracks of multiple track lines on which signaling was previously in service for one direction only. Aside from the projects discussed above, the longest "straight" automatic block project completed in 1943 was on 38.7 miles of single track on the Wabash between Bluffs, Ill., and Kinderhook.

On a total of approximately 1,580 track miles, various railroads replaced old semaphore automatic block signals with modern light signals. These projects cannot, of course, be considered as new signaled mileage, and the amounts of new signaling equipment involved may vary between wide extremes. For example, in some programs, the semaphore mechanisms may be removed, and the light signals installed on the same masts, with a minimum of changes in circuits. On the other hand, as was the case on the New York Central, all of the old semaphore signaling, including line control circuits, were removed, and the new color-light signals are controlled by the most modern form of coded track circuits with no line control wires. Thus the replacement program is equivalent to new construction throughout. On account of the restriction on materials, this type of reconstruction has been held to a minimum, but much work of this character, which has already been postponed too long, will be scheduled for early attention after the war.

Based on the fact that the volume of highway traffic had been reduced by the rationing of tires and gasoline, the War Production Board adopted the policy of not

Centralized Traffic Control Completed in 1943

Railroad	Location	Miles of Road	Direct Wire or Coded Control	No. of Levers	No. of Power Switches	No. of Semi. Auto. Signals	Manufacturer
A. C. L.	Dunlop, Va.—No. Petersburg	3.1d	DW-C	16	8	18	Union
C. & O.	East Fulton, Va.—Fulton	2.0s	DW	5	2*	8	Union
C. M. St. P. & P.	Island, Minn.—Indio	3.5s	DW	4	2	8	Union
	Madrid, Ia.—Woodward	3.6s	DW	4	2	8	Union
C. R. I. & P.	Blue Island, Ill.—Morris	48.4d	C	29	12	41	Union
	Spring Valley, Ill.—Bureau	12.8d	C	26	13	57	Union
	Atkinson, Ill.—Silvis	23.9d	C	21	9	31	Union
D. & R. G. W.	Agate, Utah—Helper	127.0s	C	115	51	214	G.R.S.
D. M. & I. R.	Keenan, Minn.—Wolf	5.0d	C	29	16	87	Union
	Iron Jct., Minn.—Sparta	6.5s	..	..	..	..	.....
L. & N.	Patio, Ky.—Irvine	24.0s	C	16	6	30	G.R.S.
	Miles, Ala.—Sibert	55.0s	C	45	16	73	G.R.S.
	Welka, Ala.—Bolling	62.0s	C	46	17	78	G.R.S.
M. P.	Peach Orchard, Ark.—Walnut Ridge	21.5s	C	21	10	40	G.R.S.
	Walnut Ridge—Hoxie	4.9d	DW	16	6	12	G.R.S.
	Hoxie, Ark.—Diaz	30.6s	C	25	12	51	G.R.S.
	Etta, Ark.—Curtis	26.5s	C	20	8	35	G.R.S.
	Bierne, Ark.—Prescott	14.9s	C	10	4	19	G.R.S.
N. C. & St. L.	Hills Park, Ga.—Junta	41.2s 1.6d	C	56	29	102	Union
N. Y. C. & St. L.	Brocton, N. Y.—Westfield	8.5s 0.2d	C	13	7	28	Union
N. Y. O. & W.	Olyphant, N. Y.	0.7s	C	1	..	2	Union
N. & W.	Roanoke, Va. — Stuarts Draft	73.7s 10.5d	C C	80	39	146	Union
	Shenandoah, Va.—Bentonville	33.7s	C	29	13	52	Union
Penna.	Red Bank, Pa.—Oil City	52.8s	C	..	8	24	Union
St. L.-S. F.	Dillon, Mo.—Swedeborg	47.1s	C	46	22	69	Union
St. L.-S.	Illmo, Mo.—Dexter Jct.	31.9s 13.2d	C	38	13	77	Union
S. A. L.	Youngville, N. C.—Raleigh	13.5s 7.0d	C	17	18	33	Union
S. P.	Bena, Cal.—Tehachapi	32.3s	..	..	28	111	Union
	Colton, Cal., eastward	28.0s	..	..	23	82	Union
T. & P.	Longview, Tex. — Willow Springs	4.1s	..	..	..	..	.....
U. P.	Las Vegas, Nev.—Yermo, Cal.	171.0s	C	147	69	239	Union
	Totals	915.6s 130.6d		875	461 2*	1,775	
	Road Miles	1,046.2			463		
	Track Miles	1,176.8					

Legend:
In "Miles of Road" column: s =single track, d =double track.
In "Direct Wire or Coded Control" column: C =coded control, DW =direct wire control, DW-D =direct wire and code.
In "No. of Power Switches" column: * =electric switch lock.

Territories of Automatic Block on Which Old Signals Were Replaced with Modern Signals

Railroad	Location	Miles of Road	No. of Signals	Manufacturer
D. L. & W.	Moscow, Pa.—Scranton	11.9t	18c	Union
	Lincoln Park, N. J.—Boonton	5.0t	12c	Union
Me. C.	Pittsfield, Me.—Harmon Pond	23.7d	26c	
N. Y. C.	Hoffmans, N. Y.—Amsterdam	5.0f	20c	G.R.S.
	Herkimer, N. Y.	2.5f	10c	G.R.S.
M. C.	Wayne Jct., Mich.—Jackson	55.0d	95c	G.R.S.
P. & L. E.	New Castle, Pa.—Edenburg	5.6d	8c	Union
	Edenburg, Pa.—Struthers	8.1t	18c	Union
	Struthers, Ohio—Youngstown	3.9d	3c	Union
Reading	Norristown, Pa.—Abrams	2.6f	5c	G.R.S.
	Perkiomen, Pa.—Birdsboro	4.5d 4.3t 12.7f	49c	G.R.S.
	Lansdale, Pa.—Telford	6.5d	10c	G.R.S.
	Williamsport, Pa.—Newberry	3.5d	6c	G.R.S.
U. P.	No. Platte, Neb.—Cheyenne, Wyo.	224.0d	298c	Union
	Kansas City, Kan.—Topeka	65.0d	125c	Union
	Green River, Wyo.—Ogden, Utah	176.0d	279c	Union
	Topeka, Kan.—Manhattan	50.0s	76c	Union
	Salt Lake City, Utah—Lynndyl	129.0s	197c	Union
	Los Angeles, Cal.—Riverside	56.0s	134c	Union
	Portland, Ore.—Dalles	80.0s 4.0d	162c	Union
Total		315.0s 571.7d 29.3t 22.8f	1,551	
	Road Miles	938.8		
	Track Miles	1,637.5		

Legend:
In "Miles of Road" column: s =single track, d =double track, t =three track, f =four track.
In "No. of Signals" column: c =color light.

New Automatic Block Signaling Placed in Service During 1943

Railroad	Location	Miles of Road	Number of Signals	Manufacturer
A. T. & S. F.	Raton, N. M.—Dillon	1.0s	3s	Union
	Texico, N. M.—Clovis	5.0d	6s	Union
	Belen, N. M.—Dalies	10.0d	18c	Union
	Hobart, Cal.—Fullerton	16.0d	34c	Union
B. & O.	Pt. Rocks, Md.—St. Denis	58.5*	32s 2cp	Union Union
	St. Denis, Md.—Daniels	11.1*	6s	Union
	Hyattsville, Md.—Potomac Yd.	10.4s 3.0d	32cp	G.R.S.
	Columbus, Ohio	1.8d	5cp	Union
B. & G.	Jacino, Utah—Harker	0.0	2c	G.R.S.
B. & M.	Lincoln Sq., Mass.—Barber	1.0d	2c	G.R.S
	Barber, Mass.—Harvard	22.0d	29c	G.R.S.
	Ballardvale, Mass.—Lawrence	4.6d	7c	G.R.S.
	Portsmouth, N. H.	0.0	1c	G.R.S.
	West Cambridge, Mass.	0.0	2c	G.R.S.
	Newburyport, Mass.	1.3*	2c	G.R.S.
	Newburyport, Mass.—Salisbury	3.6s	3c	G.R.S.
	Wilmington Jct., Mass.—Reading	4.0d	6c	G.R.S.
	Reading, Mass.—Wakefield	1.5d	3c	G.R.S.
	Worcester, Mass.—Barber	0.9s	1c	G.R.S.
C. N.	Monk, Que.	....	2c	Union
	Val Royal, Que.	1.0s	2c	Union
	Turo, N. S.	....	1c	G.R.S.
C. P.	Chapleau, Ont.—White River	130.0s	225c	Union
	White River, Ont.—Schreiber	120.0s	210c	G.R.S.
	Delamere, Ont.	6.1s	4c	Union
	Almonte, Ont.	3.7s	2c	G.R.S.
C. & W. I.	Chicago	....	2c	G.R.S.
Chi. Sub.	Chicago	5.0d	153c	Union
F. E. C.	Smyrna Beach Yard	0.0	1c	G.R.S.
	Miama Yard	0.0	1c	G.R.S.
G. N.	Blaine, Wash.—Westminster, B. C.	21.0s	32c	G.R.S.
L. V.	Raven Run, Pa.—Kohinoor Jct.	2.3d	2s	G.R.S.
	Hudsondale, Pa.—Black Creek	1.0s	1s	G.R.S.
L. & N.	Birmingham, Ala.—Calera	33.0d	31c	G.R.S.
M-K-T	Weldon Spring, Mo.—Matson	10.1s	12s	Union
	Alvarado, Tex.	0.0	1c	Union
M. P.	Dexter, Mo.—Dexter Jct.	3.7s	11c	G.R.S.
	McGehee, Ark.—McArthur	6.4s	5c	G.R.S.
N. Y. C. B. & A.	Boston, Mass.—Allston	0.6d 0.5t 5.0f	18c	G.R.S.
P. E.	Wilmington, Cal.—Gaspur	2.1d	16c	Union
	Island Jct., Cal.—Ship Yd.	2.5d	18c	Union
	Mission Rd., Cal.—Macy St.	0.2d	3c	Union
Penna.	Bengies, Md.—North Point	6.6*	2pl	Union
	Bengies, Md.—North Point	6.6*	2pl	Union
	Bowie, Md.—Seabrook	4.1*	2pl	Union
	Oakington, Md.—Short Lane	4.2*	3pl	Union
	Denholm, Pa.	0.7*	1pl	Union
	Severn, Md.	1.3*	1pl	Union
	Machais, N. Y.—Hinsdale	18.8d	10pl	Union
	Red Bank, Pa.—Oil City	52.8s	23pl	Union
	Greenville, Ill.—Pierron	9.0d	7pl	Union
	Morrisville, Pa.—Rahway, N. J.	38.7*	51pl	Union
	W. Newark, N. J.—Newark	1.8*	9pl	Union
Union	Hall, Pa.—Universal	3.0d	5c	Union
	"J" Tower, Pa.—Munhall	2.0d	11c	Union
Virginian	Mullens, W. Va.—Elmore	s	19c	G.R.S.
Wab.	Bluffs, Ill.—Kinderhook	37.5s	37c	Union
W. M.	Williamsport, Md.—Hagerstown	6.4d	4s	Union
	Hagerstown Yard, Md.	0.6s	1s	Union
W. P.	M. P. 27—Cal.	2.1s	2c	Union
Totals		411.9s 153.8d 0.5t 5.0f 134.9*	67s 922c 39cp 111pl ...	
	Road Miles	706.1	1,139	
	Track Miles	870.9		

Legend:
In "Miles of Road" column: s =single track, d =double tracks, t =three tracks, f =four tracks, * =miles of track on multiple track on which signaling was added for one direction of train operation.
In "Number of Signals" column: s =semaphore, c =color-light, cp =color position, pl =position light.

allocating materials for new crossing protection projects except for crossings in the vicinity of war industries or military camps where traffic had increased. As a result, protection was installed at only 206 crossings in 1943, as compared with 530 crossings in 1942, and 1,120 crossings in 1941.

The railroads installed 448 spring switch mechanisms in 1943, as compared with 284 in 1942 and 275 in 1941. One reason for the increase in the number of these installations during war time is that numerous train stops can be avoided by a minimum of new equipment and construction work. Of the spring switches placed in service during 1943, about 363 are at the ends of passing tracks, 29 at the ends of double track, 29 at junctions, 26 at yard leads and one is on a derail. The installations at 88 spring switches included automatic facing-point locks. As protection at spring switch layouts, a total of 396 high signals and 102 dwarfs were installed in 1943.

Impact of War Shown in Character of Railway Construction in 1943

Many new projects were carried out to speed train movements and to insure against important military traffic being delayed by bottlenecks in facilities

By George E. Boyd
Associate Editor

NEVER before in the history of the railways has it been so necessary to avoid delays to trains as at present, or to keep traffic moving at such speeds. Never before have there been so many changes in the routing of traffic, or so much need to turn locomotives and get them back into road service in minimum time. Never before have there been such insistent calls on shop facilities or such demands on the facilities for delivering fuel and water to locomotives; and never before have interchange facilities seemed so inadequate.

Why Facilities Were Inadequate

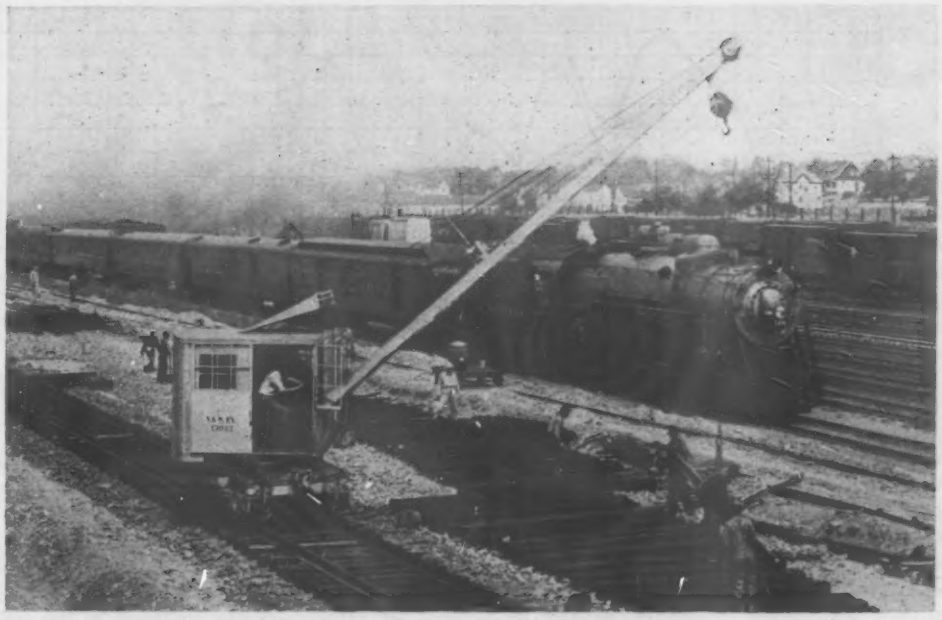
These extraordinary demands have grown out of the heaviest traffic that the railways have ever carried. They have also come at a time when the numbers of locomotives and of both freight and passenger cars in service are far below the numbers available during World War I, during which period the ton-miles of revenue freight carried were only about half what they are today. This traffic and the demands which have grown out of vast and widely scattered military activities, also came at a time when many railway facilities were not only inadequate to handle so great a volume of traffic expeditiously, but were also obsolete with respect to ordinary operating requirements.

The reason for this inadequacy of railway facilities, as the volume of traffic began to build up in 1942 and reached record proportions in 1943, was that subsequent to 1930, which was a record year with respect to the volume of internal improvements, most of which, however, were carried over from the previous year, no general and very little local expansion of the railway plant had taken place and practically no internal improvements had been carried out. The primary reason for this almost complete suspension of construction activity was that revenues had dropped to so low a level that it became practically impossible to finance projects of any considerable magnitude.

In addition, during the decade that followed the financial debacle of 1929, economic and political conditions were so disturbed that there was little incentive to

The Increased Volume of Traffic Handled by the Railways Has Required the Construction of New Passing Sidings and the Extension or Relocation of Many Existing Sidings

Much New Yard Construction and Improvement Work Was Required to Avoid Terminal Congestion and Delays



make commitments for a future that no one could foresee.

Yet during this same period, radical changes were taking place in both traffic and the methods of handling it. So completely were the methods of operation changed during these few years, and so insistent became the demands for faster service, that many of the facilities that had been the last word in design and operating characteristics at the beginning of the depression became outmoded, while many of those that had been constructed earlier were completely out of date. As traffic began to increase in 1941, yard and road operations were severely handicapped by these outmoded facilities and there was an immediate revival of construction activity. Yet the new work that was undertaken by no means kept pace with operating needs. While the construction of essential facilities continued at an accelerated rate through 1942, both the volume of traffic and the demand for more expeditious movement increased at faster rates, and the needed facilities continued to fall behind these demands.

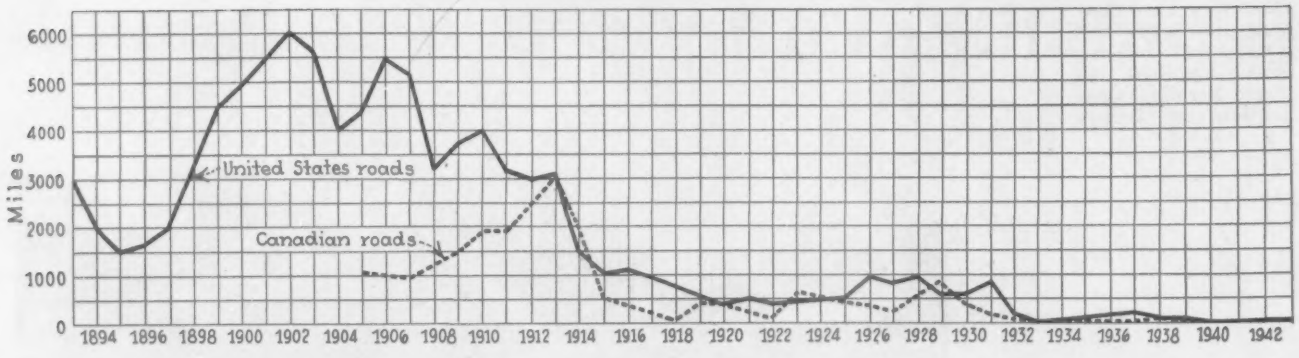
Miles of Main Track Built in the United States in 1943

State	Number of companies building	First track	Second track	Third track	Fourth track	Total
Alabama	1	3.37	....	....	....	3.37
California	1	....	19.00	....	....	19.00
Illinois	1	....	7.63	....	....	7.63
Indiana	1	....	8.80	....	....	8.80
Iowa	1	7.14	....	....	....	7.14
Louisiana	1	9.46	....	....	....	9.46
Maryland	1	....	....	13.07	6.76	19.83
Montana	1	....	2.79	....	....	2.79
New Mexico	1	....	54.90	....	....	54.90
North Dakota	1	....	12.79	....	....	12.79
Oklahoma	1	11.64	....	....	....	11.64
Oregon	1	1.16	....	....	....	1.16
Pennsylvania	2	10.57	....	....	....	10.57
Texas	2	....	3.70	....	....	3.70
Virginia	2	....	13.98	....	....	13.98
Washington	1	....	0.18	....	....	0.18
West Virginia	3	9.47	....	....	....	9.47
Wyoming	1	3.00	....	....	....	3.00
Total		55.81	123.77	13.07	6.76	199.41

It is widely recognized that even under the most favorable circumstances railway facilities suffer from a high rate of obsolescence, but because of the virtual suspension of construction during the depression years and continuing till the beginning of revived industrial activity in 1941, but more particularly because of the radical changes that occurred in operating methods during the period, more railway facilities were obsolete at the beginning of 1942 than at any previous time. Despite the efforts that were made to overcome these deficiencies, traffic and efforts to expedite it kept well in advance of the improvement of the fixed property, so that the situation with respect to obsolescence and inadequacy of many of the facilities was still more aggravated at the beginning of 1943 than it was a year earlier.

Miles of New Lines Completed in the United States Since 1830

Year	Miles	Year	Miles
1830	40	1887	13,081
1831	99	1888	7,066
1832	191	1889	5,707
1833	116	1890	5,739
1834	214	1891	4,620
1835	138	1892	4,648
1836	280	1893	3,024
1837	348	1894	1,760
1838	453	1895	1,420
1839	386	1896	1,692
1840	491	1897	2,109
1841	606	1898	3,265
1842	505	1899	4,569
1843	288	1900	4,894
1844	180	1901	5,368
1845	277	1902	6,026
1846	333	1903	5,652
1847	263	1904	3,832
1848	1,056	1905	4,388
1849	1,048	1906	5,623
1850	1,261	1907	5,212
1851	1,274	1908	3,214
1852	2,288	1909	3,748
1853	2,170	1910	4,122
1854	3,442	1911	3,066
1855	2,453	1912	2,997
1856	1,471	1913	3,071
1857	2,077	1914	1,532
1858	1,966	1915	933
1859	1,707	1916	1,098
1860	1,500	1917	979
1861	1,016	1918	721
1862	720	1919	686
1863	574	1920	314
1864	947	1921	475
1865	819	1922	324
1866	1,404	1923	427
1867	2,541	1924	579
1868	2,468	1925	644
1869	4,103	1926	1,005
1870	5,658	1927	779
1871	6,660	1928	1,025
1872	7,439	1929	666
1873	5,217	1930	513
1874	2,584	1931	748
1875	1,606	1932	163
1876	2,575	1933	24
1877	2,280	1934	76
1878	2,428	1935	45
1879	5,006	1936	93
1880	6,876	1937	148
1881	9,789	1938	38
1882	11,599	1939	58
1883	6,819	1940	26
1884	3,974	1941	54
1885	3,131	1942	74
1886	8,400	1943	56



New Lines Constructed in the United States in 1943 Aggregated 56 Miles. Canada Completed Three Miles

These demands and the conditions under which they were made could not fail to shape the character of the construction projects which had to be undertaken if traffic were to be moved expeditiously and the needs of the fighting fronts were to be served. As a consequence, during the year, attention was directed particularly to enlarging and rearranging yards to provide greater capacity and more flexibility in the movement of cars through them; to enlarging and improving engine terminals to insure quicker and more dependable handling of locomotives; to improving and enlarging interchange facilities; to the construction of new passing sidings and the extension and relocation of existing sidings; to the installation of centralized traffic control, including the interlocking and remote control of switches; to the improvement of roadbed and track; and to the alteration and enlargement of car and locomotive shops and the construction of new shop buildings. In fact, so imperative was the need for improved yard facilities that more than $20,000,000 was expended during the year on this item alone, while almost $10,000,000 was spent for the improvement of engine terminals.

Other projects designed to speed up traffic included a considerable number of line and grade revisions, principally to expedite the movement of trains between terminals by reducing curvature or to enable them to handle heavier loads. During the depression years, there was relatively little replacement of bridges, for which reason many of these structures became obsolete, even for the traffic of the period. As traffic increased, beginning with 1941, heavier locomotives were placed in service, while cars were both larger and more heavily loaded. As a consequence, the renewal of these structures became imperative and constituted one of the major items of the 1943 improvement program. The improvements which have been mentioned constitute only a part of the major projects under way or completed during the year; others which were undertaken, too numerous to mention, ramified into practically every phase of railway operation and maintenance.

Although the demands that were imposed on the various facilities made it imperative that immediate steps be taken to correct the deficiencies in some of them, and despite the number of projects and the magnitude of the construction programs that were undertaken during the last three years with this purpose in view, the surface has as yet scarcely been scratched, and there still remains a need for a vast program of construction and reconstruction that will affect every type of facility, not only to expedite present traffic but to meet the needs of the post-war period, which will bring greater competition than the railways have yet been called on to meet.

There is ample indication that traffic will not fall below its present level during 1944, but that there will be a continued rise with the increased demands that are expected from the far-flung and active battle fronts of our own forces and those of our allies. With earnings at a higher level than they have ever been, and in view of the pressing need for more modern facilities, as well as for more facilities for handling the traffic that must be moved, the prospect is that there will be still greater activity during the coming year and that there will be a still greater increase in the number of important projects, as there has already been in those of smaller magnitude. In other words, with traffic continuing at or above its present level and with the necessary funds more easily available, construction activity will increase, for there is still a suppressed need for a vast and widespread program of improvements that must be met if the railways are to continue to handle satisfactorily the present unprecedented volume of traffic that is now being offered them, and to meet post-war competition.

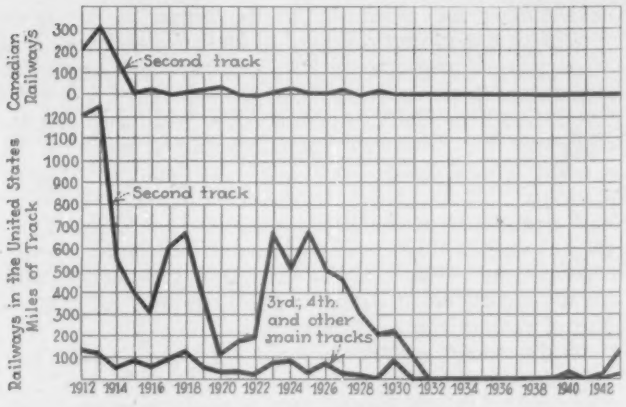
Crossing Eliminations Also Major Item

During 1943, grade-crossing eliminations continued to represent a major item in the construction programs of many roads, although in all but a few cases the work was carried out by or under the supervision of state highway officers, largely with funds provided through federal appropriations. This activity is not confined to particular railways or sections, but is distributed generally throughout the country, the allotment of funds being based partly on the density of population and partly on the mileage of roads in each of the states. During the eight years that this campaign for the elimination of grade crossings has been under way, a large number of projects have been completed, much to the benefit of the users of the highways.

In the beginning, however, less care was exercised in selecting the projects to be undertaken, the idea apparently having been to complete the largest number possible with the funds available, largely regardless of the rela-

Miles of New Lines Completed in Canada Since 1904

Year	Miles	Year	Miles
1904	316	1924	615
1905	1,181	1925	414
1906	1,007	1926	335
1907	976	1927	310
1908	1,249	1928	723
1909	1,488	1929	841
1910	1,844	1930	385
1911	1,898	1931	250
1912	2,232	1932	121
1913	3,013	1933	0
1914	1,978	1934	1
1915	718	1935	2
1916	290	1936	1
1917	207	1937	0
1918	135	1938	101
1919	433	1939	1
1920	305	1940	2
1921	252	1941	1
1922	145	1942	1
1923	655	1943	3


Canadian Railways
Second track
Railways in the United States
Miles of Track
Second track
3rd., 4th. and other main tracks
1912 1914 1916 1918 1920 1922 1924 1926 1928 1930 1932 1934 1936 1938 1940 1942

The Mileage of Multiple Tracks Placed in Service in the United States in 1943 Rose to 144

tive benefits. Today, the selection is being made on the basis of maximum benefits, for which reason the number selected annually is smaller than at first, while the cost of the individual projects averages considerably more, although low-cost projects are by no means excluded. Most of the projects under way during the year have been completed, although some of the larger jobs are being carried over into the new year. In a few cases, it has been necessary to suspend work until the restrictions on the use of structural steel have been lifted.

New Line Mileage Increases

It has been noted for many years that there is a definite relation between external and internal improvements; in other words, the mileage of new lines under construction or completed in any year provides an excellent index of railway construction activities as a whole, and this belief is borne out by analysis of construction records over a long period. Surprising as it may seem, this rule has been found to hold good during periods of sharply contracted construction as well as during more active periods. It applies with equal force under the abnormal conditions that exist today, as well as in normal times.

Confirming this trend, while only 56 miles of new lines were completed and placed in operation during 1943, more than 80 miles were under construction but not yet completed. While this mileage is insignificant compared with the 11,599 miles completed in 1882 and the 13,081 miles completed in 1887, it is almost twice as much as was completed in 1933 at the depth of the depression, or in 1940 as the railways were well emerged from the depression conditions and traffic was beginning its unprecedented rise. In this connection, it is of interest that a number of projects, running into considerable mileage are being held in abeyance, partly to permit the prosecution of other improvements that demand more immediate attention and partly because of the acute shortage of labor with which the country is now faced. One of the important projects that is still incomplete is the 12-mile extension of the Alaska, between Whittier and Portage. The track on this line is completed, but its operation is being delayed to permit completion of the terminal facilities, which were 90 per cent completed at the end of the year.

During the 20-year period ending with 1923, the mileage of new lines completed annually varied from 314 miles in 1920 to 5,623 miles in 1906, the former being the smallest mileage recorded to that time since 1847, when the long period of railway expansion was beginning to get under way. In contrast, during the 20-year period ending with 1942, the largest mileage completed in any year was in 1928, when 1,025 miles of new lines were placed in operation, and the smallest was the 24 miles completed in 1933, which was also the least mileage recorded in any year since the first railway was constructed in 1830.

It is of more than passing interest that the aggregate mileage during the first period was 46,762, while that for the second period was only 6,814, for it is significant that the average mileage completed year by year during the earlier period was 2,338, while the average for the last two decades was only 340. These figures provide the strongest possible evidence that the days of large external developments are past and that future expenditures will be applied more and more for internal improvements and for expansion of those facilities that will expedite the movement of traffic.

Much of the mileage of new lines completed and still under construction during the year is for the purpose of reaching undeveloped coal deposits or other resources, although several of these projects are in connection with grade and line improvements, and others are for the purpose of consolidating the operation of parallel lines over which the traffic is not sufficient to warrant the maintenance of two lines of railroad. One important project requiring new mileage is the replacement of the viaduct across the Pecos river on a new alinement, which is under construction in Texas, by the Southern Pacific. Another major project of the same type is that of the C. M., St. P. & P. and the C. R. I. & P., jointly, to provide a new entrance into Kansas City, including a new bridge over the Missouri River.

Slightly more than three miles of new railway were completed in Canada, all by the Canadian National in connection with its terminal improvements at Montreal, Que. No new lines were completed in Mexico, where construction work of any magnitude has been practically at a standstill for several years, although a number of ambitious projects are under consideration.

Multiple-Track Makes Large Gain

Multiple-track mileage made the largest gain in more than a decade. Second track increased from 24.23 miles in 1942 and 8.29 miles in 1941, to 123.77 miles in 1943. This latter total was made up principally of 73.90 miles placed in operation in New Mexico and California by the Atchison, Topeka & Santa Fe; of 12.79 miles completed by the Great Northern in North Dakota; of 10.36 miles placed in service by the Norfolk & Western in Virginia; and of 15.43 miles completed by the Pennsylvania in Illinois and Indiana.

For a number of years, either no third or fourth track was completed in any year or the amount was so small as to be almost negligible. As an example, in 1942, no fourth track was built and only 0.06 mile of third track was reported. However, last year the Pennsylvania completed 13.07 miles of third track and 6.76 miles of fourth track, both in Maryland. In Canada, the Canadian National completed a small mileage of second, third, fourth, fifth and sixth track, all in connection with its terminal improvements in Montreal.

During 1943, the construction of tracks to serve training camps, munition factories and other war industries, ordnance depots, arsenals, air fields and fortified areas, which became so prominent an activity during 1941 and 1942, fell off sharply from the peak of 1942, although considerable trackage of this character was completed or was still under way during the year.

In the main, the primary purpose of the construction undertaken in 1943, as well as most of that which was

carried over from the previous year, was to facilitate the movement of cars through yards and of trains on the road, or to expedite the handling of locomotives at terminals. For this reason, additions to or rearrangement of yards, the construction and extension of passing sidings, the replacement of obsolete interlockings with more modern equipment, the installation and improvement of automatic signals, the installation of centralized traffic control and the application of remote control to switches, had a large place in the construction programs of many roads. However, this major objective did not exclude the prosecution of a much wide variety of projects for which there was need.

Among the larger projects completed or still under way during the year, these being in addition to yard, terminal and interchange projects which have been discussed, the Baltimore & Ohio completed the rehabilitation of its Alexandria branch to form an emergency bridge route around Washington, D. C.; the Chesapeake & Ohio continued the construction of its Blue Ridge tunnel, at Afton, Va., and began the reconstruction of its bridge over the Big Sandy river in Kentucky; the Milwaukee and the Rock Island prosecuted their joint enterprise of providing a new entrance into Kansas City, Mo., including a new bridge over the Missouri River; the War Department completed the relocation of 8.8 miles of line for the Missouri-Kansas-Texas, in connection with the Denison reservoir, at Denison, Tex.; the Nashville, Chattanooga & St. Louis started to renew its bridge over the Etowah river at Cartersville, Ga.; the New York Central completed the relocation of 1.9 miles of line flooded by the Berlin reservoir, near Deerfield, Ohio; the Northern Pacific began work on the enlargement and improvement of its shops at Livingston, Mont.; the War Department continued work on the relocation of approximately 19 miles of line for the St. Louis-San Francisco, in connection with the Denison reservoir; the Southern Pacific continued work on the renewal of its bridge over the San Joaquin river, at Lathrop, Cal., and began work on the replacement of its high bridge across the Pecos river in Texas; the Union Pacific installed 171 miles of centralized traffic control between Las Vegas, N. M., and Yermo, Cal., which called for the extension of 31 passing sidings and the application of remote control to switches.

In the foregoing list only those projects which individually approximate or exceed $1,000,000 have been mentioned. A still larger number range between $500,000 and $1,000,000. The tabulation which accompanies this article lists all projects costing $100,000 or more and all grade crossing elimination projects regardless of cost.

In Canada, the Canadian National placed its new central station in Montreal in service during the year. While other projects have been under construction or completed during the year, like those in the United States, they have been confined largely to those designed to facilitate traffic. Construction in Mexico was virtually at a standstill during the year, no major projects having been under way.

Following is a detailed report by roads of construction projects completed during 1943 or still in progress at the close of the year, the individual cost of which approximates or exceeds $100,000:

Railway Construction in the United States

(Figures in parentheses indicate percentage of completion at the end of 1943)

Alaska

New Road Under Construction: Whittier, Alaska, to Portage, 12.4 miles, $5,300,000 (100—except terminal facilities, 90).

Important Work Undertaken: Construction of coal washing plant and power house, Eska, Alaska, $170,500 (100).

Alton & Southern

Important Work Undertaken: New interchange track with Conlogue, including installation of automatic interlocking, East St. Louis, Ill., $109,700 (100). Construction of nine additional classification tracks and boiler water facilities, East St. Louis, Ill., $252,250 (5). Enlarged interchange facilities, State street to Collinsville road, East St. Louis, Ill., $183,950 (10).

Atchison, Topeka & Santa Fe

Second Track: Texas-New Mexico state line to Melrose, N. M., 32.8 miles. Joffre, N. M., to Vaughn, 12 miles. Belen, N. M., to Dalies, 10.1 miles. Colton, Cal., to Highgrove, 2.9 miles. Hobart, Cal., to Bandini, 3.3 miles. Fullerton, Cal., to San Gabriel river, 12.8 miles.

Grade Crossing Elimination: Subway: Pauline, Kansas, (100).

Important Work Undertaken: Additional yard tracks, Vaughn, N. M. (100). Raise of grade, San Marcial, N. M. (100). Yard extension, Gallup, N. M. (100). Enlargement of freight yard, Winslow, Ariz. (100). Additional yard tracks, Needles, Cal., (100). Enlargement of yard, Barstow, Cal., (60). Auxiliary track, Barstow, Cal., (100). Enlargement of Precooler Yard, San Bernardino, Cal., (100). Repair shop for traction motors, San Bernardino, Cal., (100). Additional storage tracks, Richmond, Cal., (100).

(Gulf, Colorado & Santa Fe.) *Grade Crossing Elimination:* Overcrossings: Dallas, Tex (100). Brownwood, Texas, (100). Subway: Fort Worth, Texas (20).

Important Work Undertaken: Line change, near Ardmore, Okla., (80). Line change, near Marietta, Okla., (100).

(Panhandle & Santa Fe). *Second Track:* Texico, Tex., to Texas-New Mexico State line, 1.2 miles.

Important Work Undertaken: Extension of passing siding, Clear Creek, Texas, (50).

Atlantic & East Carolina

Important Work Undertaken: Rehabilitation of line, including rail, ties, ballast, roadbed drainage and structures, Morehead, N. C., to Kingston, 70 miles, $750,000 (33).

Atlantic Coast Line

Second Track: Dunlop, Va., to North Petersburg, 3.62 miles.

Grade Crossing Eliminations: Subway: new crossing, National park, Petersburg, Va., $100,000 (100).

Important Work Undertaken: Additional general office building, Wilmington, N. C., $220,868 (40).

Baltimore & Ohio

First Track: Curtin, W. Va., 2.77 miles, $297,000.

Grade Crossing Elimination: Overcrossings: Mansfield Ohio, $255,000 (100). E. Columbus, Ohio, $850,000 (87). Subway: Port Columbus, Ohio, $350,000 (92).

Track elevation, Granite City to Bay Terrace, Staten Island, N. Y., $3,800,000 (20—completion indefinite).

Important Work Undertaken: Rehabilitation of Alexandria branch to form emergency bridge route, Chesapeake Jct., D. C., to Benning, $689,000 (100). Additional terminal facilities, Cowen, W. Va., $495,000 (100). Changing Tunnel 23 into open cut, Kanawha, W. Va., $130,500 (100). Second track connection with Pittsburgh & Lake Erie, W. Pittsburgh, Pa., $158,000 (75). Relocation of Streets Run branch, W. Homestead, Pa., $400,000 (100). Reconstruction of Bridge 49/56, Mt. Sterling, Ohio, $110,000 (100). Revision of alinement to accommodate municipal improvements, Massillon, Ohio, $150,000 (95). Construction of bulkhead, Cleveland, Ohio, $102,000 (96). Placing present non-operating swing bridge in operation, McCook, Ill., $175,000 (100).

Campbell's Creek

Grade Crossing Elimination: Overcrossing: Reed, W. Va., $85,000 (80).

Central of Georgia

Grade Crossing Elimination: Overcrossings: Wise, Ga., $132,869 (100). Dover, Ga., $29,280 (100). Subway: Macon-Camp Wheeler Highway, Macon, Ga., $265,000 (25).

Central of New Jersey

Important Work Undertaken: Additional classification, departure and repair tracks, Tremley yard, Linden, N. J., $407,000 (100). Renewal of existing freight car transfer bridge No. 5, Jersey City, N. J., $106,000 (90).

Chesapeake & Ohio

First Track: Quinwood, W. Va., 5.50 miles.

New Road Under Construction: Millard, Ky. to Kentucky-Virginia state line, 28 miles.

Grade Crossing Elimination: Overcrossings: South Charleston, W. Va., $206,000 (100). Lemoyne, Ohio, $287,000 (100). 39th street, Newport News, Va., (To be completed in 1944). 58th street, Newport News, Va., (To be completed in 1944).

Relocation of Highways: Relocation of State Route 31, including construction of overcrossing, Pratt, W. Va., to Hansford, $200,000 (100).

Important Work Undertaken: Installation of traffic locking, on crossovers and wye connection, Newport News, Va., to Oriana, $109,000 (40). Revision of alinement and grade, including replacement of stone arch over Rivanna river with steel bridge, Columbia, Va., $358,692 (25). Second track connection with Southern, and extension of interchange tracks, Orange, Va., $104,500 (15). Extension and rearrangement of existing tracks, and construction of additional tracks in yard, Gladstone, Va., $320,200 (15). Revision of grade and alinement and construction of Blue Ridge tunnel, 4200 ft. long, Afton, Va., $1,530,200 (75). Extension of passing sidings, Christian, Va., Ferrol, North Mountain, Craigsville and Goshen, $134,700 (10). Extension and rearrangement of existing yard tracks, and construction of additional tracks, Peach Creek, W. Va., $234,500 (28). Reconstruction of Bridge 5129, over Big Sandy river, Big Sandy Jct., Ky., $1,351,000 (12). Five additional tracks in westbound classification yard, Russell, Ky., $340,000 (50). Extension of five tracks in westbound receiving yard; extension of engine runaround underpass, Ferry

street, and construction of 10 ft. arch; removal of station and office buildings; construction of pedestrian underpass; and rearrangement of shop facilities, Russell, Ky., $405,000 (40). Two additional coal storage pits, and additional crane and buckets, Newport News, Va., $105,600 (100). Widening apron on Pier 6 and installation of apron track, Newport News, Va., $113,300 (100). Widening apron on Pier 8 and installation of apron track, Newport News, Va., $107,500 (100). New switching leads and coach track facilities, installation of traffic locking, transfer of light repair yard to north side of yard and rearrangement of tracks, Fulton, Va., $289,500 (100). Additional tracks in Fulton yard, Richmond, Va., $160,500 (100). Interchange track, Second Street yard, Richmond, Va., $205,000 (100). Filling James River canal, rearrangement of tracks, and pavement of driveways, Richmond, Va., $164,300 (100). New wye track and two 85-car tracks, Lindsay, Va., $100,600 (100). Revision of alinement, Shadwell, Va., $133,102 (100). Revision of line and grade, and retirement of Greenwood tunnel, Greenwood, Va., $232,000 (100). Extension of five tracks in eastbound receiving yard, Clifton Forge, Va., $147,950 (100). Extension of east and west passing sidings; extension of bridge and construction of additional yard tracks, Quinnimont, W. Va., $166,495 (100). Construction of bridge and main supply track for new mine operation, Draffin, Ky., $663,000 (100). Team tracks, with viaduct connection and crane, Cincinnati, Ohio, $232,198 (100).

New Lines Projected: Hominy Creek extension, from mouth of Colt branch down Hominy creek and up Grassy creek, to falls of Grassy creek, 7.5 miles. Hominy creek extension, from mouth of Peaser branch up Hominy creek and Straight fork of Right fork, 4 miles. From mouth of Left fork of Hominy creek to headwaters of Brushy Meadow creek, 2.5 miles.

Chicago & North Western

First Track: Shoshoni, Wyo., to Bonneville, 3 miles, $125,000.

Grade Crossing Elimination: Subway: Westleigh road, Lake Forest, Ill., $450,000 (100).

Important Work Undertaken: Reconstruction of docks, fenders, fender piles, car ferry slips and coal dock slip, Manitowoc, Wis., $154,200 (70).

Chicago, Burlington & Quincy

Grade Crossing Elimination: Overcrossings: Oregon, Ill., $75,000 (20). New Milford, Ill., $120,000 (20). E. of Pacific Junction, Ia., $60,000 (20). Burlington, Ia., $100,000 (20).

Important Work Undertaken: Modernization of engine facilities, E. St. Louis, Ill., $104,759 (100). Stabilization of embankment, Whitebreast Hill, Ia., $176,463 (100). New passenger station, Burlington, Ia., $332,436 (100). New gravity yard, including car retarders, Lincoln, Nebr., $1,312,338 (100).

Chicago, Milwaukee, St. Paul & Pacific

First Track: Woodward, Iowa to Granger, 7.14 miles.

Second Track: Island Siding, Minn. to Blackbird Junction, 9.02 miles. Near Cheneyville, Ill., 3 miles.

New Road Under Construction: Elbe, Wash. to Eatonville, 12.66 miles.

Grade Crossing Elimination: Pedestrian subway, Hiawatha ave., Chicago, Ill., $55,000 (100).

Important Work Undertaken: Relocation of main line and construction of bridge over Missouri River to provide new entrance to Kansas City, Birmingham, Mo., $2,622,372 (38). Three line changes to reduce danger of rock slides and reduce curvature, St. Maries, Idaho, to Avery, $123,265 (100).

Chicago, Rock Island & Pacific

New Road Under Construction: Birmingham, Mo., to Kansas City, 5.53 miles, including bridge over Missouri river, $1,312,000 (25). Relocation of main line, Pulaski, Ark., 1 mile.

Grade Crossing Elimination: Overcrossings: Roosevelt road, Little Rock, Ark., $70,000 (65). Routes 81 and 66, El Reno, Okla., $201,000 (60). Route 77, Carrollton, Tex., $150,000 (100).

Subway: Route 75, Sabetha, Kan., $30,000 (100).

Important Work Undertaken: Revision of line and grade, Mercer, Mo., to Mill Grove, $2,000,000 (100). Raising grade, including bridge over Beaver Creek, Guymon, Okla., to Optima, $283,000 (100). Relocation of main line, 1.45 miles, Colfax, Iowa, $149,000 (10).

New Line Under Survey: Perlee, Iowa, to Eldon, 21.50 miles, $149,000 (10).

Danville & Western

Grade Crossing Elimination: Subway: Jones Cr. Bridge, Martinsville, Va., $29,000 (100).

Delaware & Hudson

Important Work Undertaken: Replacing and strengthening bridges, Saratoga, N. Y. to North Creek, $160,000 (60). New turntable and other terminal improvements, Binghamton, N. Y., $100,000 (75).

Delaware, Lackawanna & Western

Grade Crossing Elimination: State Route 166, Mt. Bethel, Pa., (100).

Reconstruction of Existing Grade Separation Structures: Reconstruction of overhead highway bridge, Norwich-North Norwich Highway and North Norwich-Sherburne Highway, Galena, N. Y., (60).

Denver & Rio Grande Western

Grade Crossing Elimination: Overcrossing: 21st South St., Roper, Utah, $125,000 (100). 43rd Ave. including pedestrian overpass, Denver, Colo., $26,728 (started).

Important Work Undertaken: Additional yard tracks and other facilities, Provo, Utah, $185,000 (100). Rehabilitation, line changes, additional tracks, and track changes, Sunnyside Branch—Utah, $180,000 (100). Installing complete water plant, including treating facilities, pipe line, reservoirs, etc. and changes in plant at Green River, Cedar, Utah, $180,000 (100). Extensions to 18 passing sidings and installation of 51 power-operated switches and 5 spring switches, in connection with C.T.C., Agate, Utah, to Helper, $910,000 (100). Extensions of second track, Dern, Utah, to Geneva, 5.8 miles, $190,000 (20).

Detroit, Toledo & Ironton

Grade Crossing Elimination: Subway: Access highway to Gate 10, Ford Motor Co., Dearborn, Mich., $500,000 (15).

Duluth, Missabe & Iron Range

Important Work Undertaken: Ten-stall additional to enginehouse, Proctor, Minn., $345,000 (100).

Erie

Grade Crossing Elimination: Overcrossings: State Route S-3, Rutherford, N. J. (53). State Route 171, Hoadleys, N. Y. (100).

Reconstruction of Existing Grade Separation Structures: Reconstruction of overhead bridge H-39.69, Southfields, N. Y. (59). Reconstruction of bridge 39.32, Lakewood, N. Y. (100).

Important Work Undertaken: Marine Yard structures, consisting of pump house, paint shop, carpenter shop, storehouse and machine and boiler shop on pier No. 1, Jersey City, N. J. (100). Relocation of one-half mile line, including diversion of channel of Delaware river, Long Eddy, N. Y. (96).

Georgia

Grade Crossing Elimination: Subway: Union Point, Ga., crossing abandoned, $1,308.72 (100). Overcrossing: Wylie St., Atlanta, Ga., crossing abandoned, $36,317.23 (100).

Great Northern

Second Track: Columbia Falls, Montana, 2.79 miles. Minot, N. D., to Des Lacs, 12.79 miles.

Grade Crossing Elimination: Overcrossings: Nashwauk, Minn., $8,000 (100).

Relocation of Highways: Removal of overhead bridge, 16th street, Delta, Wash., $1,000 (100). Removal of crossing, Avalon Street, So. Klamath, Ore., $3,170 (100).

Reconstruction of Existing Grade Separation Structures: Snelling ave., St. Paul, Minn., $3,400 (100). Roylston ave., Minneapolis, Minn., $12,100 (100). Kerkhoven, Minn., $1,940 (100). Replacement of overhead bridge, Bonifacius, Minn., $13,600 (100). Wayzata blvd., Minneapolis, Minn., $6,500 (100). Repavement of overhead bridge, Broadway ave., Minneapolis, Minn., $3,700 (100). Minnetonka blvd., Minneapolis, Minn., $2,900 (100). Great Falls, Mont., $2,200 (100). Replacement of pedestrian subway, Willmar, Minn., $2,530 (100). 21st street, Superior, Wis., $11,200 (100). 2nd street, Minot, N. D., $12,200 (100). Repair of viaduct, 21st street, Superior, Wis., $1,000 (100). Overhead bridge, Wayzata, Minn., $2,500 (100). Overhead bridge, 1.3, Glenwood ave., Minneapolis, Minn., $15,800 (100). Overhead bridge, University ave., Minneapolis, Minn., $1,300 (100). Overhead bridge, 4th street NE, Minneapolis, Minn., $9,500 (100). Overhead bridge, Hopkins Jct., Minn., $12,600 (100). Overhead bridge, 2.7, Glenwood ave., Minneapolis, Minn., $13,200 (100). Renewal of overhead bridge, Ashby, Minn., $8,500 (100). Overhead bridge, Alexandria, Minn., $3,400 (100). Overhead bridge, Red Lake Falls, Minn., $1,650 (100), Overhead bridge, Belknap street, Superior, Wis., $5,500 (100). Replacement of overhead bridge, Osakis, Minn., $4,850 (100).

Important Work Undertaken: Application of ballast and heavy rail, Palermo, N. D., to Manitou, $308,748 (75); Epping, N. D. to Avoca, $111,600 (10); Bainville, Mont. to Blair, $383,238 (completed); Kremlin, Mont., to Buelow, $592,736 (95); Galena, Wash., to Espanola, $100,960 (completed); Boylston, Minn., to Swan River, $150,225 (completed); Benson, Minn., to Hancock, $237,325 (completed); and Walden, N. D. to Luverne, $122,600 (completed). Widening roadbed and applying ballast and heavy rail, Cut Bank, Mont., to Blackfoot, $423,600 (to be completed in 1944); Espanola, Wash., to Waukon, $108,600 (completed); Monroe, Wash., to Lowell, $230,820 (completed); Dresden, N. D., to Hannah, $133,600 (completed); Geyser, Mont., to Moccasin, $229,000 (completed); Willmar Div., Minn., $114,800 (completed); and Spokane Div., Wash. $121,700 (completed). Ore steaming facilities, Allouez, Wis., $123,950 (completed). Extension of yard, Minot, N. D., $157,600 (completed). Additional yard tracks, So. Klamath, Ore., $119,000 (completed). Enlargement of yard, Great Falls, Mont., $179,100 (10). Change of line, Belton, Mont., $400,000 (completed). Improvements to enginehouse, Whitefish, Mont., $147,800 (30). Power house, St. Paul, Minn., $191,950 (10). Improvement to roadbed, Wolverton, Minn., to Finkle, $110,000 (completed). Second main track, Minot, N. D., to Des Lacs, $185,750 (completed). Change of line, Red Eagle, Mont., to Belton, $1,440,000 (indefinite). Change of line, Columbia Falls, Mont., $216,600 (completed). Repairs and improvements to ore docks, Allouez, Wis., $712,350 (10). Brick warehouse for U. S. Army, Seattle, Wash., $250,700 (completed). Rearrangement and extension to yard, Whitefish, Mont., $215,000 (completed). Change of line, Bonners Ferry, Idaho, $134,200 (to be completed in 1944).

Gulf, Mobile & Ohio

First Track: Montgomery, Ala., 3.37 miles.

Houston Belt & Terminal

Second Track: Houston, Texas, 2.5 miles.

Illinois Central

Grade Crossing Elimination: Overcrossings: Dubuque, Iowa, joint with Chicago, Milwaukee, St. Paul and Pacific, $408,000 (100). Tip Top, Ky., (100). Camp Shelby, Miss., (100).

Important Work Undertaken: Installation of electric interlocking, including track changes and drainage, Weldon Yard, Chicago, Ill., $229,970 (100). Additional yard tracks, Harahan Jct., La., $301,470 (5). New bridge over Yazoo river, Redwood, Miss., $783,010 (5).

Lehigh Valley

New Road Under Construction: Extension to Germantown Branch, Centralia, Pa., 3.15 miles.

Louisville & Nashville

New Road Under Construction: Up Leatherwood Creek, Walter, Ky., 10.32 miles.

Grade Crossing Elimination: Overcrossings: Montgomery, Ala., $100,000 (100). Mobile, Ala., $100,000 (100). Subway: Murfreesboro Pike, Nashville, Tenn., $175,000 (100).

Important Work Undertaken: Replacement of Bridge 36, over Kentucky river, Ford, Ky., $218,735 (80). Improvement of yard and coaling facilities, Flomaton, Ala., $161,774 (100). Reconstruction of Bridge 25, over Roundhouse creek, near Livingston, Ky., $105,655 (100).

Maine Central

Grade Crossing Elimination: Overcrossing: St. Johnsbury, Vt., $320,000 (100). Subway: Fairfield, Me., $276,000 (75).

Missouri & Illinois Bridge and Belt

Important Work Undertaken: Pier protection at bridge over Mississippi river, Alton, Ill., $60,000 (100).

Missouri-Kansas-Texas

Grade Crossing Elimination: Overcrossings: Route 40, Lloyds, Mo., $116,800 (100). State Route 52, Windsor, Mo., $88,000 (95). Savanna,

Okla., (100). Subways: State Route 19, Atoka, Okla., $129,000 (75). Route 75, Sherman, Tex., $95,800 (100).

Important Work Undertaken: Relocation of 8.8 miles of main line in connection with the construction of the Denison reservoir by the War department, Pottsboro, Tex., to Sadler, $970,000 (100).

Missouri Pacific

Grade Crossing Elimination: Overcrossings: Route 69, Wagoner, Okla., $75,000 (25). State Route 14, Hoberg, Mo., $100,000 (100). East Herrin st., Herrin, Ill., $18,000 (100).

Subway: State Route 30, Gravois ave., St. Louis, Mo., $330,000 (100).

Important Work Undertaken: Revision of grade, Greenwood Jct., Okla., $251,200 (100). Construction of undercrossing and new siding, Hope, Ark., $130,500 (100). Construction of joint yard tracks, Bauxite Junction, Ark., $127,300 (100). Extension to siding, Swifton, Ark., $115,700 (100). Centralized traffic control, including track changes, Knobel, Ark., to Dod Junction, $471,000 (100). Replacement of Bridge 100, Parkin, Ark., $114,000 (100). Additional yard tracks, Alexandria, La., $103,000 (100). Reconstruction of Bridge 87, Yancopin, Ark., $548,000 (90). Relocate main track and bridge, Riverton, La., $287,000 (85). Revision of alinement and grade, Cole, Mo., to Myrick, $303,400 (50).

(Gulf Coast Lines) Line Change 6.2 miles, including 18,750 ft. of floodway bridge of reinforced concrete construction, over Morganza floodway, Krotz Springs, La., to Lottie, $2,500,000 (90).

Nashville, Chattanooga & St. Louis

New Road Under Construction: Denver, Tenn., to Camden, 10.73 miles.

Grade Crossing Elimination: Overcrossing: Carroll st., Tullahoma, Tenn., $350,000 (100).

Important Work Undertaken: Reconstruction of Bridge 7.5, Atlanta division, Bolton, Ga., $254,179 (30). New bridge and approaches, over Etowah river, Cartersville, Ga., $719,530 (5).

Nevada Northern

Grade Crossing Elimination: Subway: Tonopah pit, Kimberly, Nev., $5,000 (100).

New York Central

Grade Crossing Elimination: Overcrossings: Relocation of highway and construction of overhead crossing, Post Creek, N. Y., $218,900 (95). Route 60, Reed, W. Va., $623,000 (90). Relocation of James road, and construction of overhead crossing, joint with B. & O. and Penna., Columbus, Ohio, $863,780 (97). Franklin avenue, Erie, Pa., joint with N. Y. C. & St. L., $397,300 (98).

Subway: State Route 283, Painesville, Ohio, $425,550 (100).

Relocation of Highways: Seven crossings eliminated by relocation of 3.25 miles of line, Herkimer, N. Y., $3,380,000 (90).

Reconstruction of Existing Grade Separation Structures: Reconstruction of subway, Bulkley blvd., Cleveland, Ohio $780,920 (100).

Important Work Undertaken: Extension of 13 stalls in enginehouse to 140-ft., Selkirk, N. Y., $118,000 (100). Construction of three-story brick building to provide sleeping quarters and restaurant facilities for engine and train crews, East Syracuse, N. Y., $210,000 (75). Extension of 15 stalls of enginehouse to 140 ft. including circular ash pit and four 130 ft. inspection pits, East Syracuse, N. Y. $520,000 (100). Reconstruction and extension of 12 stalls of enginehouse destroyed by fire, including track changes, Gardenville, N. Y., $180,000 (100). Extension of 11 stalls in enginehouse, installation of new smoke jacks and rearrangement of other facilities, including track changes and replacement of wash room and locker facilities for engine crews and shopmen, Buffalo, N. Y., $325,000 (100). Underpinning and extending piers and strengthening Bridge 216 over Cattaraugus creek, Irving, N. Y., $109,400 (50). Relocation of 1.9 miles of line flooded by Berlin reservoir, between Deerfield, Ohio, and North Benton, $800,000 (100). Removal of eastbound hump, Collinwood yard, Cleveland, Ohio, $111,000 (100). Replacement of gravity coaling trestle with 1,700-ton mechanical coaling plant; three double-track well-type cinder pits; replacement of 100-ft. turntable with one 120-ft. long; rearrangement of tracks and other facilities at engine terminal; installing water, coal and cinder handling facilities at Dille road for servicing through road power, Collinwood yard, Cleveland, Ohio $560,000 (20). Additional receiving and classification tracks, including rearrangement of car repair and other facilities, Dickinson, W. Va., $213,500 (100).

(Boston & Albany) *Grade Crossing Elimination:* Reconstruction of Existing Grade Crossing Structures: Reconstruction of Bridge 158.83 carrying State highway, Richmond, Mass., $119,100 (100).

(Cleveland, Cincinnati, Chicago & St. Louis) *Important Work Undertaken:* Relocation of two main tracks and construction of six additional classification tracks with a capacity of 568 cars, Bellefontaine, Ohio, $252,000 (100). Replacement of engine terminal facilities destroyed by fire, Bellefontaine, Ohio, $823,000 (85). Construction of two cinder pits, engine washing platforms 110 ft. long, installation of sewer and water lines, rearrangement of existing tracks and construction of additional tracks, Bellefontaine, Ohio, $75,000 (100).

(Michigan Central) *Grade Crossing Elimination:* Subways: Route 112, Willow Run, Mich., $480,000 (100). Detroit Industrial Expressway, Dearborn, Mich., $800,000 (10). Detroit Industrial Expressway and Junction Yards branch, Dearborn, Mich., $350,000 (15).

Important Work Undertaken: Installation of one 100-ton and one 50-ton automatic electric drop tables; extension of five enginehouse stalls, Jackson, Mich., $190,000 (30).

(Pittsburgh & Lake Erie) *First Track:* Extension of Ohio River Branch, in Pa., 0.07 miles.

New York, Chicago & St. Louis

Grade Crossing Elimination: Viaduct, joint with New York Central, New York, Chicago and St. Louis and Pennsylvania, Franklin ave., Erie, Pa., $390,500 (90).

Important Work Undertaken: Steel viaduct to replace 540 ft. of frame trestle, including realignment of 2,780 ft. of main track, Ramsey, Ill., $149,293 (100). Reconstruction of yard tracks, Madison St. Yard, Conneaut, Ohio, $120,000 (100). Reinforcement and strengthening of five bridges and replacement of an 85-ft. turntable with one 110-ft. long, Buffalo, N. Y. to Cleveland, Ohio, $500,000 (100). Elevation of main and yard tracks, Cayuga, Ind., $152,900 (60). Expansion of yard facilities, Frankfort, Ind., $471,340 (100). Extension of passing sidings on Chicago division, in Indiana, $105,018 (100).

Norfolk & Western

Second Track: Vesuvius, Va., to Cold Spring, 10.36 miles, $664,150.

Important Work Undertaken: Extension of roundhouse, construction of shop buildings and other facilities, Roanoke, Va., $270,750 (100). Centralized traffic control, including incidental track changes, Roanoke, Va., to Stuarts Draft, $678,115 (100). Additional yard tracks, Hagerstown, Md., $150,000 (100). Extension of four passing sidings, Shenandoah district, Va., $140,000 (100). Installation of car retarders, Portsmouth, Ohio, $110,000 (100). Extension of six passing sidings, Cincinnati Dist., Ohio, $163,000 (100).

Northern Pacific

Grade Crossing Elimination: Subways: Mandan, N. D., $176,356 (100). Trentwood, Wash., $50,000 (100).

Important Work Undertaken: Addition to locomotive shop; construction of mechanical department facilities, including locomotive and machine shop, two-story storehouse and shop office, boiler tube storage building, acetylene generator building, and other facilities, Livingston, Mont., $1,450,000 (15).

Pennsylvania

First Track: Chester, W. Va., to Penna. state line, 1.7 miles. Penna.-W. Va. state line, to Raccoon creek, Pa., 10.5 miles.

Second Track: Stubblefield, Ill., to Marty, 7.63 miles. Charlottesville, Ind., to Greenfield, 8.80 miles.

Third Track: Bengies, Md., to Back river, 5.03 miles. Severn, Md., to Odenton, 3.75 miles. Bowie, Md., to Seabrook, 4.29 miles.

Fourth Track: Bengies, Md., to Back river, 6.76 miles.

Grade Crossing Elimination: Pedestrian crossing closed, Convent Lane, Torresdale, Pa. (100). Revision of alignment to eliminate five grade crossings, Dauphin, Pa., (100). Elimination of grade crossing through purchase of property, Myrtle ave., Claymont, Del., (100). Grade crossing elimination through purchase of property, public road, Holly Oak, Del., (100). Grade crossing elimination through purchase of property, Avenue A. South Danville, Pa., (100). Grade crossing eliminated through retirement of portion of branch line, 5th st., Reading, Pa., (100).

Overcrossings: State highway, Short Lane, Md., (100). State highway, Magnolia, Md., (100). Yost road, Pottstown, Pa., (100). Route 40, Mulberry Grove, Ill., (100). James road, Columbus, Ohio, (100).

Subways: Elm st., Erie, Pa., (100). Franklin st., Erie, Pa., (100). State highway 655, Poth road, East Columbus, Ohio, (100).

Relocation of Highways: Marginal road, Schuylkill ave., Hamburg, Pa., (100).

Important Work Undertaken: Replacement of electro-mechanical interlocking machine by an electro-pneumatic machine, and replacement of wooden interlocking tower with brick tower, Princeton Jct., N. J., (60). Replacement of electro-mechanical interlocking machine by an electro-pneumatic machine, and replacement of wooden interlocking tower with brick tower, Monmouth Jct., N. J., (10). Construction of an additional floatbridge and additional track facilities, Greenville Yard, Jersey City, N. J., (100). Renewal of 1,612 ft. of wooden bulkhead partly with steel sheet piling, and partly with wood, Coal pier, South Amboy, N. J. (100). Replacement of brick arch over street, with concrete arch; relining three arches with concrete and filling one brick arch over Grant st. and Poquessing creek, Torresdale, Pa., (45). Changes and improvements to commissary building, Long Island City, N. Y., (100). Four new stores on south side of Long Island concourse, Pennsylvania station, N. Y., N. Y. (7). Reconstruction of stock yards, low water deck, to replace facilities destroyed by fire, Jersey City, N. J., (85). Extension of six tracks and electrification of these tracks, westbound receiving yard, Harrisburg, Pa., (100). Additional yard tracks, Bay View yard, Baltimore, Md., (100). Reconstruction of Long Bridge, Washington, D. C., (100). Coaling station, turntable and yard tracks, East Altoona, Pa., (100). Electrification of additional tracks, Potomac Yard, Va., (100). Extension of northbound track, Bowie, Md., to Seabrook, (100). Extension of southbound track, Severn, Md., to Odenton, (100). Additional yard tracks, Canton yard, Baltimore, Md., (100). Alterations and additions to electric locomotive shop, Wilmington, Del., (100). Carload delivery yard, Washington, D. C., (100). Extension of No. 1 track and additional water facilities, Minnick, Md., (100). Additional main tracks and extension of northward siding, Havre de Grace, Md., to Bush river, (50). Reconstruction of Bridge 247.21, Gallitzin, Pa., (15). Extension of Bridge 10.19 to permit construction of tracks for Carnegie-Illinois Steel Co., East Pittsburgh, Pa., (100). Spur track to mine of H. C. Frick Coke Co., Bute, Pa., (100). Reconstruction of main tracks, Pittsburgh, Pa., to Etna, (10). Dredge dock slip, Erie, Pa., (100). Additional storage tracks and inspection building, Jackson, Pa., (100). Reconstruction of Bridge 109.64, Massillon, Ohio, (5). Open cut to replace Tunnel No. 4, Bertha, Pa., (100). Open cut to replace Tunnel No. 9, Cadiz, Ohio, (100). Extension of Cumberland branch to Raccoon Creek, Chester, W. Va., (100). New coaling station at Kinsman st. enginehouse, Cleveland, Ohio, (60). New water-type ash pits, Kinsman st. enginehouse, Cleveland, Ohio, (5). Reconstruction of part of Ore Dock 11, Cleveland, Ohio, (5). Additional yard track, Crestline, Ohio, (100). Five relay tracks in eastbound and five relay tracks in westbound yard; additional car repair facilities in westbound yard, Crestline, Ohio, (100). Westbound siding of 150 car capacity; westbound switch interlocked and remote control on eastbound switch, Bucyrus interlocking, Bucyrus, Ohio, (100). Extension of eastbound siding to Dunkirk, and installation of remote control at west switches of eastbound and westbound sidings, Dola, Ohio, to Dunkirk, (100). Five relay tracks each in eastbound and westbound yards; additional water, coaling and ash pit facilities, Ft. Wayne, Ind., (100). Extension of eastbound and westbound sidings and installation of remote controlled switches, Hobart, Ind., (100). New yard, 674 car capacity, and additional water facilities, Indiana Harbor, Ind., (100). Extension of westbound receiving yard, construction of car repair and interchange facilities and completion of third and fourth main tracks on C. & N. division, Columbus, Ohio (50). Extension and improvement of eastbound and westbound sidings, and installation of interlocking and provision for remote control of switches from Dunreith, Centerville, Ind., Dublin and Dunreith, (100). Two relay tracks of 150 cars capacity each, with adjacent running track and additional coal and water facilities, Hawthorne Yard, Indianapolis, Ind., (100). Extension of eastbound passing siding, 2.7 miles, to Kraft coal dock, Davis, Ind., (100). Conversion of present 138 car siding now used in both directions into a westbound siding and construction of an eastbound siding to hold 150 cars, Summit, Ind., (100). Extension of passing sidings, and installation of remote control for switches, St. Elmo, Ill., Hunter, Vandalia, Highland and St. Jacobs, (100). Purchase of property and grading for additional tracks, Bay Junction yard, Sandusky, Ohio, (100). Construction of eastbound and westbound relay yards, with water and coal facilities, Mounds, Ohio, (100).

(Approximate cost of foregoing projects, $29,568,872.)

(Long Island) *Grade Crossing Elimination:* Track elevation, including 25,400 ft. of double track viaduct, 830 ft. of single track viaduct and 4,100 ft. of embankment; nine new stations and platforms; 4.6 miles of new highway on right-of-way; to eliminate 40 grade crossings, Rockaway Beach, L. I., (100). 4.5 miles of double track subway, to carry railway under improved highway, existing tracks lowered about 27 ft.; two new stations; to eliminate 21 grade crossings, Atlantic ave., Brooklyn, N. Y. (100). Abandonment of railway over two crossings, construction of a single track subway for one crossing, elevation of tracks on earth embankment, to provide headroom for roadway; removal of passenger station; construction of new freight house, platforms and additional tracks, to eliminate three grade crossings, Hempstead, L. I., (100).

Important Work Undertaken: Holding yard to serve the plant of Aluminum Company of America, Maspeth, N. Y. (100).

(Approximate cost of foregoing projects, $36,038,000).

Pere Marquette

Important Work Undertaken: Extension of 400 ft. of revetment wall, St. Joseph, Mich., $112,500 (100).

Reading

Important Work Undertaken: Extension of boiler plant, including equipment at car dumper, Port Reading, N. J., $82,000 (100).

Richmond, Fredericksburg & Potomac

Important Work Undertaken: Six additional tracks and switching lead, Acca yard, Richmond, Va., $172,000 (90). Construction of southbound passing siding, Fredericksburg, Va., $100,000 (10). Addition to machine shop, storehouse and pipe shop, and additional tracks, Acca Locomotive terminal, Richmond, Va., $180,000 (20). Construction of lead track, 2½ miles long into north end of southbound yard and installation of electro-pneumatic interlocking, Greendale, Va., $160,000 (20).

St. Louis-San Francisco

First Track: Liggett, Okla., to Platter, 11.64 miles.

New Road Under Construction: Ravia, Okla., to Randolph, 3.09 miles. Mead, Okla., to Lakeside, 4.06 miles.

Grade Crossing Elimination: Overcrossings: State Route 183, Irving, Tex., $75,000 (100). Route 60, Wyandotte, Okla., $150,000 (60). Subways: Route 75, Dawson, Okla., $47,000 (100). State Route 13 and Route 64, Bolivar, Mo., $51,900 (100).

Important Work Undertaken: Construction of approximately 19 miles of relocated line to replace lines submerged by reservoir of Denison Dam, Ravia, Okla., to Randolph, Liggett to Platter and Mead to Lakeside, $3,500,000 (90). Extension of bridge by construction of two new concrete piers, one new concrete abutment and erection of 380-ft. steel through truss span and 50 ft. steel deck plate girder span, Van Buren, Ark., $170,000 (100).

Seaboard Air Line

Grade Crossing Elimination: Overcrossings: Viaduct to carry new military access road, Edna, Ga., (100). Viaduct to carry new military access road, Hoffman, N. C., (100).

Important Work Undertaken: Installation of remote controlled switches, at Franklinton, N. C. and Henderson, in connection with centralized traffic control between Raleigh, N. C., and Youngville, $206,228 (100). Relocation of car shops and tracks, including an overhead highway bridge, Richmond, Va., $431,000 (50). Revision of alignment and grade, and construction of running track, Marston, N. C., to Pine Bluff, $602,000 (95). Yard and station facilities to serve United States Air Borne Command, Hoffman, N. C., $166,000 (100). Additional running track and yard facilities, Hamlet, N. C., $556,000 (75). Addition to division office building and alterations to passenger facilities, Hamlet, N. C., $150,000 (5). Revision of alignment, vicinity of Nottoway river, Rawlings, Va., $535,000 (65). Running track, Raleigh, N. C., to Millbrook, $465,000 (65). Revision of alignment, including construction of culvert, Berkeley, Ga., $104,000 (50). Revision of alignment and grade, and reconstruction of bridge, Omaha, Ga., $104,000 (25). Revision of alignment, Lilburn, Ga., to Gloster, $535,000 (10). Revision of alignment, Chester, S. C., $190,000 (20). Revision of alignment, and reconstruction of bridge over Little river, Watts, S. C., $280,000 (100). Revision of alignment and replacement of bridge with concrete culvert, Dacula, Ga., $225,000 (100). Replacement of truss spans over Ocone river with girder spans on concrete piers, Athens, Ga., $130,000 (100). Revision of alignment and reconstruction of bridge, Dinwiddie, Va., $120,000 (100).

Southern Pacific

New Road Under Construction: Ferris, Tex., to Ten Mile creek, 0.62 miles. Sheldon, Tex., to San Jacinto river, 0.43 miles, at High Bridge, Tex., 1.75 miles.

Grade Crossing Elimination: Overcrossings: Pedestrian passage way, Fort Ord, Cal., $43,000 (100). Haskell, Ore., $29,000 (100). Subway: Pedestrian passage, Ft. Ord, Cal., $43,000 (100).

Important Work Undertaken: Additional yard tracks, West Oakland, Cal., $291,000 (100). Additional yard tracks, Richmond, Cal., $113,000 (100). Additional yard tracks, Sparks, Nev., $124,000 (20). Additional yard tracks, Colton, Cal., $303,000 (95). Additional yard tracks, East yard, Yuma, Ariz., $233,000 (50). Revision of alignment in connection with relocation of Pacific highway, 2.25 miles, Eugene, Ore., to Springfield, $140,000 (100). Revision of alignment to eliminate Tunnels 21 and 22 on San Joaquin Line, Lang, Cal., to Humphries, $142,000 (10). Increasing height of dam, and construction of spillway and gate tower, Bonita Dam, N. M., $100,000 (75). Extension of 24 passing sidings, a total of 65,905 ft., at various points on system, $396,000 (100). Installation of pedestrian subway, station platform and curbs, including incidental track changes, Yuma, Ariz., $100,000 (90). New locomotive erecting shop, Sparks, Nev., $213,000 (60). Replacement of single-track fixed bridge with double-track vertical-lift span 100 ft. long with truss and girder spans, Lathrop, Cal., $732,000 (80). Construction of continuous cantilever-type bridge over Pecos river, High Bridge, Tex., $1,403,151 (5).

New Lines Under Survey: At various points in West Texas creek, 10 miles.

(Northwestern Pacific) *Important Work Undertaken:* Replacement of passenger ferry slip with freight apron, Sausalito, Cal., $104,000 (50).

(San Diego & Arizona Eastern) *Grade Crossing Elimination:* Subway: Pedestrian passage for Navy, San Diego, Cal., $40,000 (100).

Spokane, Portland & Seattle

First Track: Sweet Home, Ore., 1.16 miles.

Second Track: Vancouver, Wash., 0.18 miles.

Important Work Undertaken: New enginehouse and shops and service building for steam-power and new shop in service building for electric power, Engine terminal, Portland, Ore., $500,000 (100). Construction of eight additional tracks and switching lead, freight yard, Willbridge, Ore., $105,000 (100). Additional tracks, freight yard, Vancouver, Wash., $180,000 (60). Additional tracks, freight yard, Wishram, Wash,, $375,000 (70).

Texas & Pacific

Important Work Undertaken: Revision of alignment and construction of impounding reservoir, Marshall, Tex., $120,000 (100).

Union Pacific

Grade Crossing Elimination: Overcrossings: Baxter, Wyo., $37,100 (100). Over three Union Pacific tracks and four A. T. & S. F. tracks, Aliso st., Los Angeles, Cal., $5,245,000 (89). Over two tracks owned jointly by Union Pacific, Great Northern, and C. M. St. P. & P.; five Northern Pacific tracks; one track of the Pacific Coast; one track of the C. M. St. P. & P. and two tracks of the Union Pacific, Spokane st., Seattle, Wash., $1,000,000 (100).

Subway: Warener, Utah, $37,000 (100).

Important Work Undertaken: Revision of alignment, Pyle, Ore., $178,000 (100). Construction of 64,000-bbl. fuel oil storage tank, loading and unloading facilities, and installing trackage, LaGrande, Ore., $146,500 (100). Reconstruction of power plant, LaGrande, Ore., $100,000 (10). Acquisition of additional right of way; construction of 16,952 ft. of running track and connections; rearrangement of track connections and construction of pole line and erection of signals, Rieth, Ore., to Pendleton, $151,800 (100). Replacement of eight pile piers with concrete piers, Platte river, Valley, Neb., $107,300 (100). Replacement of boiler washing plant with new electrically-operated boiler washing system, Green River, Wyo., $107,410 (100). Thirty-three-foot extension to 16 stalls of enginehouse and replacement of toilet and locker room facilities in new location, Green River, Wyo., $202,500 (100). Revision of alignment and grade, Grantville, Kans., to Topeka, $382,500 (80). Replace existing boilers, with 3-500 horse power boilers and erection of new stacks, Salt Lake City, Utah, $136,000 (20). Rearrangement of existing facilities and construction of 12,345 ft. of running track, Warner, Utah, to Stockton, $100,000 (100). New drilled well, installation of air lift pumping equipment, replacement of compressor and condenser, and relay 31,500 ft. of water pipe, Kelso, Cal., $118,100 (100). Construction of 171 miles of centralized traffic control, including extension of 31 passing sidings, Las Vegas, Nev., to Yermo, Cal., $1,331,201 (100). Revision of alignment, 2.08 miles, to retire tunnel No. 3 on eastbound main track, Wahsatch, Utah, $315,000 (100). Revision of 13.51 miles to replace existing line flooded by Cascade reservoir, Boise project, Cascade, Idaho to Donnelly, $455,027 (25). Construction of additional trackage and interlocking; relaying rail; purchase and rehabilitation of 3,500 ft. of Salt Lake, Garfield & Western in South Temple st., Salt Lake City, Utah, $118,700 (100). 31,800 ft. of additional yard and repair tracks, and replacement of rail in existing tracks, Salt Lake City, Utah, $100,000 (100). Construction of 80,000-bbl. fuel-oil storage tank; installation of loading and unloading facilities, and construction of tracks to serve plant, Huntington, Ore., $153,200 (100). Restoration of embankment, and construction of 25 new jetties and repair of ten stone jetties, Kansas City, Kan., to Topeka, $477,500 (100). Additional facilities at Food Terminal, Denver, Colo., $367,500 (100). Additional tracks and roadways for team and yard, on Public Levee, in connection with Food Terminal, Kansas City, Kan., $605,900 (80). Three feet raise of grade, 1.63 miles, Lawrence, Kan., $129,100 (100).

Union

Important Work Undertaken: Consolidated shop building for maintenance of way and stores department, Duquesne, Pa., $235,000 (100). Repairing and strengthening bridge over Monongahela river, Port Perry, Pa., $225,000 (25). Additional yard facilities, Irvin, Pa., $205,000 (40). Locomotive repair shop, Hall, Pa., $200,000 (100).

Virginian

Important Work Undertaken: Additions and revisions to terminal yard, Sewalls Point, Va., $165,000 (24). Extension and improvements to engine house, Elmore, W. Va., $120,000 (25).

Western Maryland

Important Work Undertaken: Four additional tracks; extension of six tracks in classification yard, and installation of No. 12 crossover, Hagerstown, Md., $105,000 (50).

Western Pacific

Important Work Undertaken: Raising of 14,725 ft. of track and construction of eight additional concrete culverts, Dunphy, Nev., to Deeth, $226,000 (75). Construction of two concrete abutments 50 ft. high and installation of 60 ft. steel girder, Doyle, Cal., $125,000 (100).

Canada

Canadian National

First Track: New Central Station, to Victoria Bridge, Montreal, Que., 2.19 miles. Lachine Canal to Hibernia st., Montreal, Que., 0.85 miles.

Second Track: New Central Station to Victoria Bridge, Montreal, Que., 2.19 miles. Lachine Canal to Hibernia st., Montreal, Que., 0.79 miles.

Third Track: New Central Station to Victoria Bridge, Montreal, Que., 0.78 miles.

Fourth Track: New Central Station to Victoria Bridge, Montreal, Que., 0.91 miles.

Fifth Track: New Central Station to Victoria Bridge, Montreal, Que., 0.56 miles.

Sixth Track: New Central Station to Victoria Bridge, Montreal, Que., 0.52 miles.

Grade Crossing Elimination: Overcrossing: Mile Post 19.58, Dundas subdivision, Ont. (Started).

Reconstruction of Existing Grade Separation Structures: Replacement of overcrossing, Laurier ave., Ottawa, Ont., (25). Reconstruction of overcrossing, Woodstock, Ont., (75). Reconstruction of part of overhead highway bridge Mile Post 1.46, Cowichan subdivision, B. C. (100).

Important Work Undertaken: Additional terminal facilities, Lake Edward, Que., (To be completed in 1944). Storage yard, Southwark, Que. (To be completed in 1944). Construction of double track line known as Butler st. connection, Montreal, Que. (To be completed in 1944). New terminal facilities, Montreal, Que. (Indefinite).

Canadian Pacific

Grade Crossing Elimination: Overcrossings: St. Jerome, Que., $110,000 (100). Portaland street, St. Johnsbury, Vt., $200,000 (100).

Northern Alberta

Important Work Undertaken: Construction of ten stall enginehouse, Dunvegan Yard, Edmonton, Alta., $170,000 (100).

Toronto, Hamilton & Buffalo

Grade Crossing Elimination: Reconstruction of Existing Grade Separation Structures: Reconstruction of overcrossing, Mt. Pleasant, Ont., $5,160 (100).

Mexico

National Railways of Mexico

Grade Crossing Elimination: Subway: Kilo C-75, $10,000 (100).

Important Work Undertaken: New freight yard, including classification, reclassification and departure tracks, Monterrey, N. L., $200,000 (100).

Rail Abandonments Drop Sharply

Mileage of lines on which operation was discontinued in 1943 was 56 per cent less than in 1942, although the total exceeded 1,000 miles for the thirteenth time

By George E. Boyd

Associate Editor

FOLLOWING the record abandonment of 2,516 miles of lines in 1942, the railways of the United States abandoned 56 per cent less miles in 1943 than in the previous year, despite a continuing demand for scrap rail for use in steel production and for usable rail to equip our military railway service battalions overseas, as well as somewhat diminished requirements for the construction of tracks to and within training camps, ordnance plants, arsenals, naval depots, and other military and industrial establishments. These abandonments were not confined to any particular railway or group of railways or to any section of the country, but included many railways and reached into practically every area of the United States. There were no abandonments in Mexico, although one road in that country, the Parral and Durango, discontinued operation with the close of 1942. Less than one mile of line was abandoned in Canada in 1943.

Although, by comparison with the 2,516 miles abandoned in 1942 the 1,096 miles abandoned in 1943 seem relatively small, they are by no means negligible, as is indicated by the fact that this figure has been exceeded in less than half of 27 years during which the record of abandonments has been kept. This is the thirteenth time since this record was first compiled in 1917, and the twelfth consecutive year, in which abandonments have exceeded 1,000 miles. It is also significant of the trend of the times that the aggregate abandonments for 1943 were 1,050 miles more than the mileage of new lines completed during the year.

Miles of Lines Abandoned in the United States Since 1916

Year	Miles	Year	Miles
1917	942	1931	795
1918	959	1932	1,452
1919	637	1933	1,876
1920	536	1934	1,995
1921	1,626	1935	1,843
1922	677	1936	1,523
1923	513	1937	1,140
1924	693	1938	1,897
1925	606	1939	1,783
1926	457	1940	1,299
1927	282	1941	1,509
1928	512	1942	2,516
1929	475	1943	1,096
1930	694		

Usually, the bulk of the abandonments in any year consists of short branches that, for one reason or another, have outlived their usefulness. As might have been expected, this class of lines was again prominent among the abandonments that occurred in 1943, as will be noted by reference to the detailed tabulation by roads, which accompanies this article. However, the effect of highway competition, even under the stress of war conditions, and of the changing conditions of traffic, as well as the requirements of many of the communities served by these lines, are reflected in the number of longer lines and of entire railroads that were abandoned during the year.

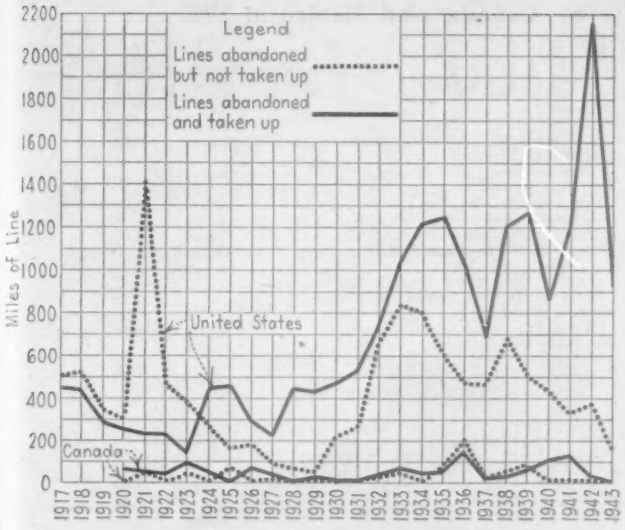
The largest abandonment during the year was the line of the Chicago & North Western, between Ilco, Wyo., and Shoshoni, 86.95 miles. The second largest in point of mileage was the line of the Baltimore & Ohio, between Sinnemahoning, Pa., and Burrows, 44.46 miles. The line of the Chicago, Rock Island & Pacific from Lawton, Okla., to Grandfield, 33.96 miles, was the third abandonment in order of magnitude; and the fourth in rank with respect to mileage for a single abandonment was the line of the Southern Pacific between Benton, Cal., and Laws, 30.65 miles.

Three entire railways were abandoned during the year, these being, in the order of mileage involved, the Washington, Brandywine & Point Lookout, between Brandywine, Md., and Forrest Hall, 24 miles; the Mississippi Eastern, from Quitman, Miss., to Crandall, 15.23 miles; and the Gulf & Northern, between Wiergate, Tex., and Newton, 14.82 miles. This compares with 14 entire railways abandoned in 1942 and the same number in 1941. In 1940 and 1939, 13 and 17 entire roads were abandoned during these respective years, bringing the total for the last five years to 61, largely because of highway competition. The abandonment of a number of additional lines is now under consideration, and it is probable that several of them will pass out of existence during 1944.

The abandonments reported in any year include all lines abandoned permanently during the year, regardless of whether the tracks have been taken up at the end of the year, and are not included in later years when the tracks are actually taken up. However, in 1943, as in 1942, the demand for all classes of released rail was so insistent that all but 169 miles of the lines abandoned during the year were taken up; some of the latter, however, were in the process of removal and others were slated for removal during the opening months of the new year.

In the main, this latter mileage represents lines for which permission to abandon was received too late to permit the removal of the rails prior to the end of the year.

Prior to 1917, abandonments were not recorded, for although some lines had been abandoned from time to time, this had occurred rather sporadically, and the lines abandoned were generally unimportant and usually located in sparsely populated areas. In most cases, they were logging roads or had served mines and were abandoned only when these resources were exhausted. For these reasons, they attracted little attention. Beginning with 1917, however, there was a sudden surge of abandonments, stimulated, as today, by war needs



Abandonments in the United States Aggregated 1,096 Miles in 1943. Less Than One Mile Was Abandoned in Canada

for many classes of railway materials, and 942 miles of lines were abandoned during that year.

From that time, abandonments have continued on a large scale, ranging in individual years from 282 miles in 1927 to 2,516 miles in 1942. During the entire 27-year period ending with 1943, a total of 30,333 miles have been abandoned, an average of more than 1,100 miles a year. During the same period, only 10,730 miles of new lines have been constructed, leaving a net decrease of 19,603 miles of road, an average deficit of more than 700 miles a year.

Of equal interest with the mileage abandoned by individual roads and the total for all roads, is the distribution of these abandonments by states and regions, for the states themselves are vitally concerned with respect to the adequacy of the transportation facilities within their borders, as well as to the taxable property that is thus lost to them. Michigan had the largest aggregate abandonment of any state during 1943, amounting to 158 miles for all of the lines within its boundaries. Pennsylvania ranked second with 110 miles, while Wyoming followed with 87 miles and Oklahoma was in fourth place with 69 miles. During the 12 years ending with 1943, Texas again stood first, with 1,279 miles abandoned. Michigan rose to second place, with 1,032 miles abandoned during the same period, while California remained in third place with 1,023 miles, and Missouri dropped to fourth place, with 1,012 miles abandoned.

During the same 12-year period, a total of 19,928 miles were abandoned in the 48 states and Alaska. By regions the abandonments have been: New England states, 910 miles; North Atlantic states, 1,799 miles; Southeastern states, 3,843 miles; Middle Western states, 5,235 miles; Northwestern states, 1,405 miles; Southwestern states, 4,610 miles; and the Pacific Coast states, 1,910 miles.

Prior to 1932, abandonments in Canada and Mexico had been negligible. However, in 1932 and 1933 the Canadian roads abandoned a total of 282 miles, since which time the abandonments have ranged from 23 to 399 miles annually, until 1943, in which year only 0.33 mile was abandoned. During the 12-year period beginning with 1932, a total of 1,166 miles of lines have been abandoned in Canada. As already stated, there were no abandonments in Mexico during 1943.

Mileage Abandoned 1932 to 1943, Inclusive

	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	Total
Alaska	....	18.27	....	....	....	3.00	195.20	....	....	....	....	....	216.47
Alabama	20.82	28.08	36.22	....	42.09	9.95	1.64	21.96	20.40	68.09	23.44	5.45	278.14
Arizona	....	126.51	15.49	17.04	....	....	16.00	8.49	8.73	0.92	4.20	0.46	197.84
Arkansas	8.17	37.85	51.28	42.35	23.95	83.43	51.10	5.59	51.39	53.01	47.06	6.49	461.67
California	0.77	185.65	116.00	70.57	30.57	74.23	34.27	37.71	148.72	36.32	224.51	64.08	1,023.40
Colorado	26.39	56.57	6.31	84.98	86.30	231.46	26.29	77.43	....	12.74	68.69	13.46	690.62
Connectiuct	....	....	....	33.93	....	25.31	50.25	....	16.88	1.17	2.21	....	129.75
Delaware	....	....	....	....	33.16	....	3.07	....	0.88	....	....	....	37.11
Florida	70.09	69.59	28.13	1.47	165.22	....	12.00	40.91	....	52.81	102.80	31.52	574.54
Georgia	66.41	46.56	126.63	12.34	....	....	85.26	39.70	0.99	87.41	19.69	18.14	503.13
Idaho	15.41	....	4.63	46.78	16.00	....	....	84.52	....	11.60	25.50	9.49	213.93
Illinois	54.83	38.30	160.82	13.90	32.06	87.42	29.41	57.14	26.25	90.45	70.59	15.43	676.60
Indiana	14.80	25.66	....	69.70	0.12	....	....	....	5.23	....	22.00	34.96	172.47
Iowa	53.12	79.51	52.44	83.32	208.75	14.44	120.58	55.88	90.01	14.10	29.42	40.37	841.94
Kansas	....	128.97	162.64	236.85	51.33	21.04	....	50.73	....	99.47	69.09	....	820.12
Kentucky	78.17	74.27	22.89	7.86	....	12.81	14.58	2.74	18.00	95.98	57.44	8.77	393.51
Louisiana	45.35	35.94	37.48	8.96	6.50	11.46	60.67	28.22	71.42	....	35.40	21.47	362.87
Maine	8.50	13.95	71.39	8.16	....	35.97	12.84	....	....	15.92	8.83	....	175.56
Maryland	1.00	....	....	25.60	....	3.75	20.23	13.29	....	7.50	1.33	24.00	96.70
Massachusetts	1.40	....	....	33.37	....	33.26	21.82	67.52	51.48	3.08	45.57	27.49	284.99
Michigan	201.99	51.05	71.39	166.20	40.16	64.65	116.65	8.14	16.99	62.82	74.85	157.64	1,032.54
Minnesota	91.07	12.94	53.37	50.93	31.94	23.18	32.91	....	42.28	52.15	0.19	23.07	414.03
Mississippi	24.10	33.50	85.57	....	....	....	....	37.45	15.48	42.44	24.57	15.23	278.34
Missouri	53.17	25.51	202.65	118.98	48.47	....	91.48	256.51	59.11	58.57	73.33	23.81	1,011.59
Montana	3.80	....	....	18.37	10.31	29.28	....	41.73	....	3.52	....	5.77	112.78
Nebraska	15.21	45.39	4.87	....	....	....	14.66	44.29	46.50	18.76	144.94	9.76	344.38
Nevada	....	....	26.27	0.31	....	....	214.71	2.20	31.30	....	32.50	....	307.29
New Hampshire	25.46	....	5.90	63.92	28.61	16.99	28.40	12.18	2.45	....	37.56	7.61	229.08
New Jersey	....	62.58	21.38	....	60.57	6.32	1.14	3.46	18.84	19.27	10.06	13.92	217.54
New Mexico	....	....	41.10	48.02	....	....	....	18.76	....	118.79	43.33	32.13	302.13
New York	58.32	4.14	30.82	30.58	57.00	29.33	201.12	51.19	60.69	0.36	58.94	11.74	594.23
North Carolina	22.24	53.10	18.50	10.00	11.39	25.17	53.82	....	62.34	31.57	1.23	....	289.36
North Dakota	....	....	....	....	16.36	....	3.56	....	....	....	....	3.96	23.88
Ohio	35.43	17.81	....	18.77	66.47	24.08	3.16	26.04	3.95	11.73	33.11	30.42	270.97
Oklahoma	....	9.24	79.01	....	8.60	15.95	108.87	222.97	11.39	16.95	144.47	69.49	686.94
Oregon	25.92	12.31	7.75	13.00	133.17	....	0.15	17.01	20.40	28.99	....	4.14	262.84
Pennsylvania	29.75	39.33	77.60	58.64	105.37	33.58	86.63	65.94	51.34	41.49	153.30	110.24	853.21
Rhode Island	....	....	....	....	....	16.33	0.58	0.48	....	....	....	....	17.39
South Carolina	44.05	....	1.54	76.50	25.00	15.80	8.60	13.50	24.97	84.66	32.57	11.65	338.84
South Dakota	....	....	24.04	26.65	16.43	....	23.33	....	120.98	14.05	4.23	6.43	236.14
Tennessee	74.01	39.81	41.23	64.15	54.84	47.94	2.60	53.44	20.49	45.87	36.23	....	480.61
Texas	107.10	188.82	126.13	77.81	39.12	44.63	23.96	118.83	75.16	123.60	339.46	14.82	1,279.45
Utah	19.71	3.05	16.19	....	....	6.88	14.70	66.03	....	....	165.72	16.42	308.70
Vermont	....	33.22	....	....	1.00	8.75	26.38	3.87	....	....	....	....	73.22
Virginia	112.89	51.69	4.80	21.74	....	4.45	47.46	0.66	38.55	1.96	99.75	21.66	405.61
Washington	16.36	55.86	12.01	88.35	12.69	10.44	30.10	8.83	13.20	43.30	6.35	17.52	315.01
West Virginia	1.36	77.49	26.08	12.13	21.10	8.85	....	14.29	29.69	16.77	59.02	33.81	300.59
Wisconsin	24.90	93.14	124.45	39.65	38.18	59.47	6.78	103.40	22.80	20.62	82.89	45.81	662.09
Wyoming	....	....	....	41.07	....	....	....	....	....	....	....	86.95	128.02
Total	1,452.07	1,875.66	1,995.00	1,842.95	1,522.84	1,139.60	1,896.96	1,783.03	1,299.28	1,508.82	2,516.37	1,095.58	19,928.16

Lines Abandoned in the United States, Canada and Mexico in 1943

United States	Lines abandoned and taken up miles	Lines abandoned but not yet taken up miles
Atchison, Topeka & Santa Fe		
Moriarity, N. M., to Stanley	11.60	....
Atlantic Coast Line		
Four Holes, S. C., to Pregnall	8.19	....
Eutawville, S. C., to Lennard	3.46	....
Kissimmee, Fla., to Narcoossee	14.24	....
Reeder, Fla., to Palmetto	5.39	....
Seth, Fla., to Senanky	3.47	....
Baltimore & Ohio		
Sinnemahoning, Pa., to Burrows	44.46	....
Wharton, Pa., to Austin	9.00	....
Boston & Maine		
Dover, N. H., to Gonic	6.97	....
At Bretton Woods, N. H.	0.64	....
Hamilton and Wenham, Mass., to Essex	5.50	....
At Turners Falls, Mass.	0.05	....
At Mt. Tom Junction, Mass.	0.17	....
Maynard, Mass., to Central Massachusetts Junction	4.71	....
Central Indiana		
Lebanon, Ind., to Advance	....	8.27
Chesapeake & Ohio		
Glen Junction, W. Va., to Flat	15.04	....
Sullivan, W. Va., to Woodpeck	2.03	....
Barrett, W. Va., to Rock Lick	4.11	....
Fork Junction, W. Va., to Alkol	1.99	....
Mt. Hope, W. Va., to Price Hill	1.73	....
At Pomeroy, Ohio	0.82	....
Chicago & North Western		
Gillett, Wis., to Northern Junction	0.50	....
At Felch, Mich.	1.38	....
Illco, Wyo., to Shoshoni	....	86.95
Chicago, Burlington & Quincy		
Alma, Neb., to Huntley	9.76	....
Englewood, S. D., to Trojan	6.43	....
Chicago, Milwaukee, St. Paul & Pacific		
Madrid, Iowa, to Granger	4.49	....
Merrill, Wis., to Averill Creek Junction	14.89	....
Goshen, Wash., to Kulshan	11.29	....
Otis, Wis., to Doering	16.79	....
Chicago, Rock Island & Pacific		
Atlantic, Iowa, to Griswold	14.22	....
Chickasha, Okla., to Lindsay	24.78	....
Lawton, Okla., to Grandfield	33.96	....
Stockton, Iowa, to Tipton	21.66	....
Chicago, St. Paul, Minneapolis & Omaha		
Cornell, Wis., to Holcombe	....	5.46
Spring Valley, Wis., to Elmwood	....	8.17
Cleveland, Cincinnati, Chicago & St. Louis		
Martinsville, Ind., to Trafalgar	18.42	....
Clinchfield		
Clinchfield, Va., to Wilder	6.00	....
Carbo, Va., to Clinchfield	....	2.40
Denver & Rio Grande Western		
Chandler Junction, Colo., to Chandler	4.61	....
Detroit & Mackinac		
National City, Mich., to Prescott	12.26	....
East Broadtop Railroad & Coal Co.		
Shade Gap, Pa., to Neelyton	4.10	....
Erie		
State Line Junction, N. Y., to New York-Pennsylvania State line	6.50	....
New York-Pennsylvania State line to Tioga Junction, Pa.	13.49	....
Stoney Point Junction, N. Y., to Haverstraw	2.14	....
Florida East Coast		
San Mateo Junction, Fla., to San Mateo	2.80	....
Great Northern		
Elbow Lake, Minn., to Tintah	15.81	....
St. Hilaire, Minn., to Wylie	7.26	....
Gulf & Northern		
Wiergate, Tex., to Newton	....	14.82
Gulf, Mobile & Ohio		
At Montgomery, Ala.	2.69	....
Illinois Central		
East Cairo, Ky., to Barlow	6.92	....
Hedrick, Ind., to Potomac, Ill.	16.27	....
Louisville & Nashville		
Graves, Ala., to Redding	2.76	....
Como, Ky., to Madisonville	1.85	....
Michigan Central		
Dalton, Mich., to Richland Junction	8.29	....
Niles, Mich., to Three Rivers	29.14	....
At Grand Rapids, Mich.	3.98	....
SSS Junction (South Bend), Ind., to Baroda, Mich.	25.02	....
Albion, Mich., to Littlefield	13.80	....
At Homer, Mich.	....	0.65
Mississippi Eastern		
Quitman, Miss., to Crandall	15.23	....
Missouri Pacific		
South Junction, Ill., to Thebes	1.43	....
Monongahela		
Moser Run Junction, Pa., to Edenborn	....	0.89
Nashville, Chattanooga & St. Louis		
Kingston, Ga., to Rome	18.14	....
New York Central		
Van Cortland Park Junction, N. Y., to Getty Square, Yonkers	....	3.10
New York, New Haven & Hartford		
Northampton, Mass., to Cheapside	17.05	....
At Medfield Junction, Mass.	0.01	....
Norfolk & Western		
Part of Town Hill branch, Clinch Valley district, Va.	3.02	....
At Roanoke, Va.	0.03	....
Roanoke Belt Line, Roanoke, Va.	0.04	....
Part of Abingdon branch, Va.	0.07	....
Part of North Fork Elkhorn spurs, Bear Wallow branch, W. Va.	1.06	....
Part of Tug Fork branch, W. V.	0.02	....
Part of Wayne branch, W. Va.	0.25	....
Norfolk Southern		
Back Bay, Va., to Munden	5.10	....
Northern Pacific		
Keystone Junction, N. D., to Berndt	3.96	....
Harrison, Mont., to Pony	5.77	....
Carbondale, Wash., to Fairfax	6.23	....
Pennsylvania		
At Gilberton, Pa.	0.93	....
Lake Conewago branch, Colebrook, Pa.	1.25	....
At Amesville, Pa., part of branch No. 1	0.36	....
At Amesville, Pa., part of branch No. 3	0.89	....
Part of Phillipsburg branch, Phillipsburg, Pa.	1.66	....
Entire branch, Liveright, Pa.	0.53	....
Landenburg Pa., to Chatham	7.11	....
At Cassandra, Pa.	0.34	....
Part of Bute Run branch, Bute, Pa.	1.80	....
Loudonville, Ohio, to Brink Haven	16.60	....
At Glen Campbell, Pa. (Brady Run branch)	0.65	....
At Hillman, Pa.	1.51	....
At La Jose, Pa.	0.22	....
At Lilly, Pa.	0.45	....
At Glascow, Pa.	0.93	....
At Glen Campbell, Pa. (McGeas branch)	1.53	....
At Claridge, Pa.	1.97	....
At Portage, Pa.	0.74	....
Crosby, Pa., to Clermont	....	8.30
New Philadelphia, Ohio, to Roswell	....	5.50
At Flintop, Pa. (Beaver Dam branch)	....	0.74
At Bolivar. Pa. (Bolivar branch)	....	0.97
Pennsylvania-Reading Seashore Lines		
Atco, N. J., to Williamstown Junction	2.43	....
Williamstown, N. J., to Glassboro	0.07	....
Daretown, N. J., to Oakland	4.70	....
Sea Isle City, N. J., to 51st street, Ocean City	6.42	....
At Ocean City, N. J. (Connection at 51st street with Sea Isle City branch)	0.30	....
Pere Marquette		
North Greenville, Mich., to Howard City	17.64	....
Lakeview, Mich., to Howard City	10.72	....
Mecosta, Mich., to Big Rapids	14.66	....
Mecosta, Mich., to Barryton	11.23	....
Coleman, Mich., to Beaverlin	10.51	....
Mecosta, Mich., to Remus	....	4.36
Pittsburgh & Lake Erie		
Part of Nellie branch, Pa.	0.14	....
Pittsburgh, Lisbon & Western		
Lisbon, Ohio, to Signal	....	7.50
Reading		
Pine Grove, Pa., to Auchenbach	1.58	....
Wetzel, Pa., to Gehman	1.04	....
At Leesport, Pa.	0.84	....
Mahanoy Plane, Pa., to Lawrence Colliery branch	0.93	....
St. Louis & Hannibal		
Ralls Junction, Mo., to Perry	17.90	....
St. Louis-San Francisco		
Ash Grove, Mo., to Phoenix	5.91	....
LaPanto, Ark., to West Ridge	6.49	....
Liggett, Okla., to Platter	....	10.75
Seaboard Air Line		
Lake Villa, Fla., to Tarpon Springs	3.12	....
Elfers, Fla., to New Port Richey	2.50	....
Southern Pacific		
Kerman, Cal., to Caruthers	18.43	....
Truckee, Cal., to Lake Tahoe	14.74	....
At Hollister, Cal.	0.19	....
At Los Gatos, Cal.	0.07	....
Benton, Cal., to Laws	30.65	....
At Clifton, Ariz.	0.46	....
Carrizozo Junction, N. M., to Capitan	20.53	....
Texas & Pacific		
Ville Platte, La., to Eunice	16.08	....
Hamburg, La., to Longbridge Junction	5.39	....
Union Pacific		
Milford, Utah, to Frisco	16.42	....
Johns, Ore., to Umapine	4.14	....
Montpelier, Idaho, to Paris	9.49	....
Galeton, Colo., to Purcell	8.85	....
Washington, Brandywine & Point Lookout		
Brandywine, Md., to Forrest Hall	24.00	....
Western Allegheny		
Dewey, Pa., to Brady's Bend	0.89	....
Western Maryland		
Dailey, W. Va., to Huttonsville	7.58	....
Winchester & Western		
Gore, Va., to Rock Enon	5.00	....
	926.75	168.83
CANADA		
Michigan Central		
At Leamington, Ont.	0.33	....

Railroads Add T. & T. Facilities

By John H. Dunn

Associate Editor

A Well Constructed Pole Line Insures Reliable Communication Service

Record wartime communication load is being handled by using existing telephone and telegraph facilities more intensively and by utilizing carrier current and apparatus to add more circuits

THE enormous increase in wartime traffic on the railroads has brought about a corresponding increase in their need for telegraph and telephone communication; this need was met in 1943 by using existing facilities more intensively, and also by adding new circuits and apparatus as fast as materials could be secured. The use of carrier current apparatus to provide additional circuits over existing line wires has been of great help, especially at this time when the supply of new line wire is limited.

Principal Increases in Communication Plant Facilities on the Railroads

In the United States and Canada During 1943, as Compared with 1942 and 1941

	1943	1942	1941
Miles of new or rebuilt pole line			
Railroad owned	3,536.1	3,374	2,742
Commercially owned	2,248.8	3,353	3,069
Jointly owned	2,171.6	1,873	1,357
Total	7,956.5	8,600	7,168
Mileage of new copper line wire			
Railroad owned	1,657.5	8,770	8,504
Commercially owned	1,965.8	3,864	4,849
Total	3,623.3	12,634	13,353
Gross increase in miles of road dispatched by telephone	672.2	2,153	1,296
Increase in miles of long-distance telephone circuits	15,461.9	9,763	9,607
Increase in mileage of printing telegraph circuits	11,980.6	13,840	12,217
Number of new printing telegraph machines	186.0	160	196
Increase in circuit miles of new carrier-current systems	13,914.8	18,372	9,695

Increased Message Traffic

On account of the timely importance of shipments of raw materials, food stuffs, armament and ammunition, shippers and consignees require more information regarding the movement and delivery of cars. Furthermore, the number of diversions in transit have increased. In order to increase the utilization of freight cars, empty cars must be ordered and spotted when needed but not before, and loaded cars must be moved promptly, which requires increased local telephone and telegraph service. Furthermore, the number of messages required in handling reservations for passengers has increased greatly. The assembly of cars for troop movements and the special arrangements which must be made in advance for handling these trains, all require a great deal of telegraph and telephone communication, and this takes precedence over every other business.

On account of the heavy traffic being handled, possible causes of serious train delays must be dealt with promptly, thus requiring efficient telephone service between various points on the railroad, and especially between the division offices and general headquarters. All these conditions have led to the development of numerous practices designed to utilize existing telegraph and telephone facilities more intensively and for more hours daily. A vast majority of the supervisory officers having to do with the operation of trains, roundhouses, freight yards and other facilities are working early and late, and much of their telephoning is done before and

Printer Telegraph Equipment Handles Heavy Message Traffic

after regular office hours, because the lines are too busy during the normal working hours.

Scarcity of New Materials

On account of the scarcity of certain metals and other materials such as rubber, the manufacture and installation of new railroad telegraph and telephone facilities has been made subject to approval by the War Production Board, and its policy has been to authorize the installation only of those new facilities which are required as an important aid in the war program.

In conformity with the policy of using a minimum of critical materials, only 3,623 miles of new copper line wire was installed in 1943, as compared with 12,634 miles in 1942 and 13,353 miles in 1941. Of interest, therefore, is the fact that a total of more than 27,371 circuit miles were placed in service during 1943, the excess over the new wire mileage being derived by using carrier current and other methods for utilizing the same line wire for two or more circuits simultaneously.

New and Rebuilt Pole Line Construction and New Line Wire Installations in the United States and Canada During 1943

Railroad	New or Rebuilt Pole Lines: Railroad Owned	Commercially Owned	Jointly Owned	Mileage of New Copper Wire: Railroad Owned	Commercially Owned
A. T. & S. F.	....	....	223.7	188.0	6.8
A. C. L.	....	....	....	1.0	2.2
B. & O.	0.2	....	28.0	....	....
B. & L. E.	3.7	....	....	3.9	....
B. & M.	....	120.0	....	....	5.0
C. N.	....	....	1,063.0	66.0	883.0
C. P.	88.0	....	....	83.0	817.0
C. & O.	171.4	....	....	42.9	....
C. & E. I.	....	....	149.0	....	....
C. & W. I.	....	4.7	....	....	....
C. B. & Q.	629.0	64.0	....	99.0	....
C. G. W.	40.0	53.0	....	....	....
C. M. St. P. & P.	75.0	....	....	15.0	....
C. N. S. & M.	....	....	....	34.0	....
C. R. I. & P.	....	183.0	....	119.0	....
D. & H.	16.5	9.7	....	10.0	....
D. & R. G. W.	....	12.0	....	....	....
D. M. & I. R.	10.0	....	....	1.0	....
Erie	50.5	9.4	0.5	....	69.6
F. E. C.	1.6	....	....	3.2	....
Ft. W. & D. C.	....	2.0	....	....	....
G. N.	623.0	....	....	24.0	....
I. C.	64.5	....	....	....	....
G. & S. I.	....	41.0	....	....	....
Y. & M. V.	79.0	99.0	....	....	....
K. C. S.	....	60.0	....	50.5	....
L. & H. R.	35.0	....	....	....	....
L. & N. E.	21.2	....	....	....	....
L. & N.	729.0	....	....	....	....
M.St.P. & S.S.M.	164.0	....	220.4	....	....
D. S. S. & A.	....	....	29.0	....	....
M. P.	....	219.3	....	142.5	....
N. C. & St. L.	45.0	....	....	....	....
N. Y. C.	38.0	289.0	....	22.0	38.0
B. & A.	....	64.5	....	....	....
C. C. C. & St. L.	....	18.0	....	....	64.0
M. C.	....	46.0	....	22.0	....
P. & L. E.	0.5	....	60.0	2.2	25.0
N. Y. C. & St. L.	....	....	36.0	....	....
N. Y. N. H. & H.	....	148.0	....	....	3.0
N. P.	40.0	....	268.0	83.0	2.0
N. & W.	....	47.0	....	....	....
P. E.	....	2.5	....	1.3	12.7
Penna.	465.5	....	....	104.2	....
P. & S.	24.0	....	....	....	....
Reading	1.5	46.5	....	....	....
St. L. & S. F.	....	112.7	....	....	....
St. L.-S. W.	....	88.0	....	....	....
S. A. L.	....	102.6	....	....	....
S. P.	....	256.7	....	444.0	17.0
Southern	....	....	....	28.0	....
Spokane Intrl.	66.0	....	....	....	....
U. P.	....	....	....	11.3	7.5
Virginian	54.0	....	....	....	....
Wab.	....	152.0	....	....	....
W. M.	....	55.0	....	....	....
W. P.	....	....	94.0	45.0	....
W. & L. E.	....	53.0	....	11.5	13.0
Total	3,536.1	2,248.8	2,171.6	1,657.5	1,965.8

More Telephone Facilities Provided

Telephone train dispatching systems were needed on some divisions of certain roads to replace telegraph, not only because of the shortage of trained telegraph operators but also to expedite the handling of train orders. As a result, during 1943, telephone train dispatching was installed on 119 miles on the Chicago, Rock Island & Pacific, on 140 miles on the Kansas City Southern, and on 120 miles on the Chicago, Indianapolis & Louisville.

New Mileage of Telephone Train Dispatching and Long-Distance Telephone Circuits Placed in Service in 1943

Railroad	New Miles of Road Dispatched by Telephone	Miles of New Long-Distance Telephone Circuits
A. T. & S. F.	..	2,742.0
A. C. L.	..	178.9
B. & O.	10.0	..
C. N.	3.0	3,105.0
C. P.	3.0	1,795.0
C. of G.	..	103.0
C. & O.	4.7	179.4
C. B. & Q.	..	128.0
C. M. St. P. & P.	..	561.0
C. I. & L.	100.0	100.0
C. R. I. & P.	119.0	1,025.0
D. & H.	113.0	..
D. & R. G. W.	..	1,540.0
Erie	53.5	84.8
K. C. S.	140.0	..
M. P.	..	123.3
N. Y. C.	..	22.0
M. C.	..	22.0
N. P.	120.0	800.0
P. E.	6.0	..
Penna.	..	650.1
S. P.	..	520.0
T. & N. O.	..	123.0
Southern	..	14.0
N. O. & N. E.	..	116.8
U. P.	..	1,326.6
Wab.	..	105.0
W. M.	..	87.0
Total	672.2	15,461.9

In order to provide more telephone service between division headquarters and general offices, the railroads installed long-distance telephone service on 15,461 circuit miles during 1943, as compared with 9,763 miles in 1942 and 9,607 miles in 1941. The most extensive long-distance telephone circuits installed last year were 3,105 circuit miles on the Canadian National, 2,742 circuit miles on the Atchison, Topeka & Santa Fe, 1,326 miles on the Union Pacific, 1,540 miles on the Denver & Rio Grande Western and 1,025 miles on the Chicago, Rock Island & Pacific.

A large percentage of the new long-distance telephone circuits was secured by using carrier equipment, as, for example, 1,556 circuit miles on the Canadian National, 1,202 miles on the A. T. & S. F., 1,025 miles on the Rock Island, and 1,540 miles on the D. & R. G. W. The Rock Island project included Type H single-channel carrier on 260 miles between Des Moines, Iowa, and Fairbury, Neb., on 256 miles between Des Moines and

New Printing Telegraph Placed in Service During 1943

Railroad	Miles of Circuit	Number of Machines
A. T. & S. F.	1,465.0	18
C. N.	3,891.0	39
C. P.	3,554.0	19
C. R. I. & P.	5.0	1
D. & R. G. W.	745.0	44
Erie	32.1	..
N. Y. C.	....	....
B. & A.	239.0	4
N. & W.	314.0	3
Penna.	290.0	38
P. M.	2.0	2
Reading	81.0	2
S. A. L.	579.0	3
S. P.	....	....
T. & N. O.	....	5
U. P.	709.5	6
W. M.	74.0	2
Total	11,980.6	186

Minneapolis, Minn., and on 380 miles between Little Rock, Ark., and El Reno, Okla. The Union Pacific installed a total of 1,326 circuit miles of long-distance telephone service, using the Type H-1 carrier on various sections, as on 336 miles between Las Vegas, Nev., and Los Angeles, Cal., and on 289 miles between Portland, Ore., and La Grande. The Canadian Pacific used carrier channels to secure 506 miles of telephone circuit.

Circuit Mileage Derived by Carrier Installations During 1943

Railroad	Circuit Miles
A. T. & S. F.	1,321.0
C. N.	3,954.0
C. P.	1,468.0
C. I. & L.	100.0
C. of G.	103.0
C. M. St. P. & P.	561.0
C. R. I. & P.	1,025.0
D. & R. G. W.	2,413.0
G. N.	109.0
G. M. & O.	135.0
I. C.	146.0
Y. & M. Y.	
M. St. P. & S. S. M.	460.0
N. P.	400.0
N. & W.	132.0
Penna.	140.0
U. P.	1,088.8
Wab.	272.0
W. M.	87.0
Total	13,914.8

Printing Telegraph Extended

Not only on account of the scarcity of Morse telegraph operators but also to increase speed of transmission, the use of telegraph printers is rapidly replacing the use of Morse telegraph between offices which regularly exchange any considerable volume of messages. Printer service is also used effectively on numerous roads for transmitting train consists to yards ahead of the arrival of those trains.

On account of the war traffic, the need for additional telegraph printer service is greater than can be supplied—this statement applying with reference not only to the sending and receiving machines but also to circuits between offices. During 1943 the railroads installed printing telegraph on 11,980 circuit miles, and 186 printing telegraph machines were placed in service, these figures being comparable with 13,840 circuit miles and 160 machines in 1942. The circuits for printer operation were derived in various ways to avoid the installation of new line wire. For example, the A. T. & S. F. changed 247 miles from Morse to printer telegraph, and obtained 1,218 circuit miles by using new carrier channels. The Norfolk & Western installed printing telegraph service between Roanoke, Va., and Portsmouth, Ohio, by providing carrier current apparatus. The Union Pacific changed from Morse to printer operation on 709 circuit miles between Cheyenne, Wyo., and Rawlins, and between Portland, Ore., and Huntington.

Equipment Prices

THE source of unit prices of motive power and rolling stock, tabulated herewith, is the decisions of the Interstate Commerce Commission, made public in granting railroads authority to issue equipment trust certificates. The weight of the equipment is usually not shown in the information made public by the I. C. C., but is supplied by *Railway Age* from other sources, where the equipment for which trust certificates are authorized can, with reasonable assurance, be identified with that ordered, and for which *Railway Age* has the weights and other descriptive information.

Not all equipment ordered is financed by the sale of equipment trust certificates—and it is not possible to identify with *Railway Age* statistics of orders all equipment for which certificates are issued. Consequently, the prices as shown in the accompanying tabulations represent only a fraction of the entire market. However, the data are factual and, probably, are representative. In any event, they cover a substantial portion of equipment purchased, and are derived, primarily, from the only official source of such information.

Locomotive Prices

No.	Type	Service	Weight, lb.	Tractive Force—lb. or hp.	Unit Price
3	Diesel-elec.	Frt.	.....	5,400 hp.	$503,195
15	Diesel-elec.	Sw.	240,000	1,000 hp.	78,700
20	2-8-8-4	Frt.	646,000	115,000	272,458
24	4-8-2	Frt.	401,100	59,850	182,000
10	2-8-4	Frt.	432,000	64,100	156,748
15	2-8-4	Frt.	432,000	64,100	173,903
10	4-8-4	Frt. & Pass.	.....	.....	222,450
5	Electric	Pass.	.....	.....	285,000
51	2-10-4	Frt.	577,975	110,100	180,000
6	Diesel-elec.	Sw.	.....	1,000 hp.	78,500

Freight Car Prices

No.	Type	Construction	Capacity lb.	Unit Price
965	hopper	composite	100,000	$2,723
1,250	hopper	composite	100,000	2,756
1,130	hopper	composite	100,000	2,771
1,000	D.B., H.S. gondola	composite body steel underframe	100,000	2,620
700	H.S. gondola	composite	148,000	2,876
200	flat	steel	140,000	3,059
250	Hart ballast	composite	140,000	3,809
300	flat	steel underframe	100,000	3,135
1,000	gondola	composite	140,000	3,150
1,450	hopper	composite	100,000	2,600

The ODT Has Lifted the Mileage Restrictions on New Buses. This Is One of the Latest to Be Put in Service

Motor Transport Carries On

Rail-highway co-ordinated service feels pinch of dwindling supplies of gasoline, rubber and vehicles

By Charles Layng

Transportation Editor

THE effectiveness of rail-highway co-ordinated service was demonstrated more than ever during 1943, despite the fact that manpower and material shortages made themselves strongly felt in this field. The principal problems of the railways which are using co-ordinated service arose in complying with the various O. D. T. orders and they occupied a large part of the attention of all operators of buses and trucks. The railways established no new bus subsidiaries during the year, but they did inaugurate some new co-ordinated trucking services for L. C. L. in an effort to save freight cars.

Of paramount concern among railway truck and bus operators were the O. D. T. orders issued during the year for consolidating services, which included several instances of railway-owned highway subsidiaries being tied up with independent operators in carrying out specific services. All of these orders were in the interest of mileage reduction and greater utilization of available equipment.

There was also considerable discussion during the year of Senator Wheeler's threat to introduce legislation making it illegal for a railway to operate a revenue bus or truck for any reason whatever. If he were to follow through and succeed in getting such legislation enacted, it would mean the end of a steadily growing phase of the railway industry and the cancellation of a service that has become invaluable to many shippers.

In the early part of the year, many agencies proposed confining trucks to short-haul traffic and this created a considerable furore, which died down somewhat in the last six months. Meanwhile, the O. D. T. continued, throughout the year, its program of securing the largest possible contribution to national transportation from the trucks. One phase of this was to permit truck lines to use the shortest route between points they are authorized to serve, instead of longer routes which are frequently specified in the certificates. During the year, a 3 p. m. curfew was set on orders for pick-up and delivery service, which, of course, applies to trucks operated in such service by the railways.

Some of the existing rail-highway subsidiaries were granted new routes, while a few new services were inaugurated to save box cars by handling L. C. L. freight in trucks. Among these were the new coordinated services of the C. M. St. P. & P. in Wisconsin and northern Michigan and of the M. & St. L. in Minnesota.

On September 2, a joint conference was held in Washington between representatives of the A. A. R., the O. D. T., and the American Trucking Association, and committees were appointed to study means to conserve both railway and highway transportation by the co-ordination of services. Earlier in the year, several steps had already been taken in this direction, both by voluntary action on the part of the railways and truck lines involved and by O. D. T. orders. Among others, this co-operation and use of joint services involved the following highway

subsidiaries of railways in co-operation with independent truck lines:

Santa Fe Trail Transportation Company, (A. T. & S. F.) for service between Kansas City and Kansas points.

Pacific Motor Trucking Company (S. P.) between San Francisco and California points.

Frisco Transportation Company (St. L. & S. F.) between Springfield, Mo., and Kansas City.

Northern Pacific Transport Company (N. P.) between several Montana points.

Many more joint arrangements have been entered into or are now in the process of being established. In view

This Is One of the Railway Subsidiaries Now Conducting Joint Operations with Other Carriers Under ODT Orders

of the importance of such savings in transportation to the war effort, the O. D. T. has arranged for the government to waive any legal action under the anti-trust laws that might otherwise result from such combined efforts. For the wartime period there would seem to be much that can be done in this direction. The limiting of trucks to short hauls and the turning over of long-haul business to the railways would appear to be a means whereby a much greater saving in transportation could be effected. However, when this was proposed, such a storm of violent protest arose that this means of conserving transportation will probably not be adopted.

Bus Operations

Limiting speed over the highways to 35 m. p. h. had a far greater effect on the railways' bus operations than on their truck operations. Most of the latter are relatively short-haul, where this speed is adequate, but on the long runs of the buses, the new rule has been a limiting factor. Early in the year, the O. D. T. ordered capacity loading of all buses. In practice, this amounted to 120 per cent of the standard rated loading capacity of the tires, because the O. D. T. announced that the 35 m. p. h. speed limit imposes less strain on the tires and the buses can handle a greater load. The O. D. T. order stated that this move was made "to fill empty seats and reduce multiple sections." As a matter of fact, bus travel, like train travel, has increased so much since then that capacity loads are being handled daily in any event. The order has, however, reduced the use of multiple sections materially.

The O. D. T. first relieved and then abandoned entirely the mileage restriction which it placed on new buses purchased since July 31, 1942. The original order held the mileage on such buses in inter-city service to 4,000 miles per month. The protests regarding this restricted use of the newest and presumably most efficient equipment mounted steadily and, early in the spring, the limit was increased to 6,000 miles per month for these buses. At the same time, the operators were asked by the O. D. T. to reduce the total mileage they operated with all buses. On May 1, the mileage limit on new buses was eliminated entirely.

A larger proportion of the bus drivers were within the draft age than, for example, railway enginemen or conductors and for this reason the manpower shortage has been felt more keenly by the railway bus subsidiaries. To offset these losses, training schools for drivers have been established and every effort has been made to secure additional help. A large number of women have been employed in the maintenance of equipment department and a few as drivers. The problem still continues to be a serious one, with no prospects of any immediate satisfactory solution.

Co-ordination Between Companies

As with truck lines, railway subsidiary bus lines have been urged to co-ordinate their operations with those of other bus operators and have been granted the same immunity against anti-trust proceedings. Among the railway-affiliated bus lines who have entered into such arrangements with other operators during the year are the following:

Pennsylvania-Greyhound (Penna.), service between Chicago and Indianapolis; also between Norwalk, Ohio and Toledo.

Santa Fe Trail Transportation Company (A. T. & S. F.), service between Albuquerque and New Mexican points.

Northern Pacific Transport Company (N. P.) and the Burlington Trailways (C. B. & Q.), service between points in Montana.

For the duration of the war, at least, there can be no great increase in the number of rail-highway co-ordinated services. After the war, assuming that such co-ordination is not forbidden by law, a considerable revival is certain, because the wartime necessities have demonstrated to the railways what highway subsidiaries can do for them in saving freight and passenger car miles. Even though cars will not then be in such demand as they are now, the economical and flexible handling of certain types of traffic will be a controlling factor. This was brought out particularly forcibly during the first full year of operation under O. D. T. order No. 1, dictating minimum loads for merchandise cars, for those roads which had truck subsidiaries had little difficulty in complying with this order, as the cars could be loaded to some central point and the freight distributed to local stations from there.

The year showed the potentialities of rail-highway co-ordination in the way of saving cars. It also pointed to possibilities for the post-war period that are far greater than anything that has been done in the past.

The accompanying list of orders for highway vehicles shows that during 1943 railroads and their reporting subsidiaries and affiliates placed orders for a total of 341 motor buses, 467 units of highway freight equipment (276 trucks, 99 tractors and 92 trailers), 295 automobiles and no miscellaneous vehicles. This compares with 580 motor buses, 2,424 units of highway freight equipment, 268 automobiles, and one miscellaneous vehicle ordered during 1942. Canadian roads and their affiliates reported no orders placed for highway vehicles during 1943, as compared with 26 motor buses, one truck and two automobiles ordered during 1942.

Orders for Highway Vehicles

Purchaser	No.	Type of Vehicle	Seating capacity or truck capacity in tons	Where to be used	Manufacturer
Alabama Great Southern	1	Truck	½ ton	Co. Business	Chevrolet
Alton & Southern	1	Truck	3 ton	Co. Business	Int. Harvester
	1	Truck	½ ton	Co. Business	Chevrolet
	1	Automobile	5	Co. Business	Chevrolet
	1	Automobile	5	Co. Business	Chrysler
Atchison, Topeka & Santa Fe					
Santa Fe Trail Transportation Co.	100	Bus	37	Rev.	a.c.f. Motors
	25	Bus	36	Rev.	Fitzjohn
	19	Truck	2½ ton	Rev.	General Motors
	6	Truck	1½ ton	Rev.	General Motors
	6	Truck	2½ ton	Rev.	Int. Harvester
	1	Truck	½ ton	Co. Business	General Motors
	2	Trailer	....	Rev.	Fruehauf
	4	Automobile	5	Co. Business	General Motors
	6	Automobile	5	Co. Business	Chrysler
Santa Fe Transportation Co. (California)	1	Automobile	5	Co. Business	General Motors
Southern Kansas Greyhound Lines, Inc.	2	Bus	37	Rev.	a.c.f. Motors
	2	Bus	36	Rev.	Fitzjohn
Atlantic Coast Line	1	Truck	1 ton	Rev. & Co. Business	Dodge
Baltimore & Ohio	38	Truck	½ ton	Co. Business	.....
West-Virginia Transportation Co.	3	Bus	38	Rev.	Int. Harvester
	3	Bus	33	Rev.	Int. Harvester
	7	Bus	37	Rev.	White
Bessemer & Lake Erie	1	Automobile	5	Co. Business	Plymouth
Canton	2	Automobile	5	Co. Business	Chevrolet
Chesapeake & Ohio	2	Bus	....	Co. Business	Chevrolet
	1	Truck	½ ton	Co. Business	Plymouth
	1	Truck	½ ton	Co. Business	Dodge
	4	Automobile	....	Co. Business	Chevrolet
	3	Automobile	....	Co. Business	Pontiac
	3	Automobile	....	Co. Business	Oldsmobile
	4	Automobile	....	Co. Business	De Soto
	1	Automobile	....	Co. Business	Hudson
	1	Automobile	....	Co. Business	Buick
Chicago & Illinois Midland	1	Automobile	5	Co. Business	Dodge
Chicago, Burlington & Quincy	1	Bus	21	Co. Business	General Motors
	2	Bus	8	Co. Business	Chevrolet
	1	Bus	8	Co. Business	Dodge
	1	Bus	8	Co. Business	Ford
	1	Truck	½ ton	Co. Business	Int. Harvester
	1	Truck	¾ ton	Co. Business	Chevrolet
	1	Truck	1½ ton	Co. Business	General Motors
	3	Truck	1½ ton	Co. Business	Ford
	4	Automobile	5	Co. Business	Chevrolet
	4	Automobile	5	Co. Business	Ford
	7	Automobile	5	Co. Business	Plymouth
	1	Automobile	2	Co. Business	Chevrolet
Burlington Transportation Co.	15	Bus	29	Rev.	Int. Harvester
Chicago, Milwaukee, St. Paul & Pacific	1	Bus	10	.....	.....
	1	Bus	20	.....	.....
	1	Truck	½ ton	.....	.....
	15	Automobile	5	.....	.....
	2	Automobile	7	.....	.....
Chicago, Rock Island & Pacific	1	Truck	1½ ton	Co. Business	Int. Harvester
	2	Automobile	5	Co. Business	Ford
Rock Island Motor Transit Co.	1	Truck	2½ ton	Rev.	General Motors
	7	Tractor	2½ ton	Rev.	White
	6	Tractor	2½ ton	Rev.	General Motors
	2	Tractor	1½ ton	Rev.	Ford
	1	Tractor	1½ ton	Rev.	Chevrolet
	15	Trailer	4 ton	Rev.	Fruehauf
	3	Trailer	4 ton	Rev.	Trailmobile
Cincinnati, New Orleans & Texas Pacific	1	Truck	1 ton	Co. Business	Dodge
	1	Automobile	....	Co. Business	De Soto
	1	Automobile	....	Co. Business	Chevrolet
Columbus & Greenville	1	Tractor	4 ton	Rev.	Int. Harvester
Delaware, Lackawanna & Western	1	Bus	....	Co. Business	.....
	1	Truck	½ ton	Co. Business	.....
	1	Truck	¾ ton	Co. Business	.....
Detroit, Toledo & Ironton	5	Automobile	5	Co. Business	Ford
Erie	1	Bus	....	Co. Business	General Motors
	1	Bus	36	Co. Business	General Motors
	1	Bus	....	Co. Business	Ford
	1	Bus	32	Co. Business	Ford
	1	Bus	36	Co. Business	Ford
	1	Bus	35	Co. Business	Int. Harvester
	2	Truck	½ ton	Co. Business	General Motors
	1	Truck	¾ ton	Co. Business	General Motors
	3	Truck	1½ ton	Co. Business	General Motors
	1	Truck	1½ ton	Co. Business	Dodge
	1	Truck	½ ton	Co. Business	Ford
	1	Truck	1½ ton	Co. Business	Ford
	1	Truck	1½ ton	Co. Business	Int. Harvester
	1	Automobile	5	Co. Business	Buick
	15	Automobile	5	Co. Business	Chevrolet
	5	Automobile	2	Co. Business	Chevrolet
	1	Automobile	5	Co. Business	Dodge
	3	Automobile	5	Co. Business	Ford
	2	Automobile	2	Co. Business	Ford
	1	Automobile	5	Co. Business	Nash
	6	Automobile	5	Co. Business	Plymouth
	1	Automobile	2	Co. Business	Pontiac
Gulf Coast Lines	1	Automobile	....	Co. Business	General Motors
Gulf, Mobile & Ohio					
Gulf Transport Co.	6	Bus	37	Rev.	General Motors
	4	Bus	37	Rev.	General American Aerocoach Co.
Illinois Terminal	2	Bus	33	Rev.	White
International-Great Northern	1	Truck	1½ ton	Co. Business	General Motors
	1	Automobile	....	Co. Business	General Motors
Lehigh & New England	2	Automobile	....	Co. Business	General Motors
Maine Central	5	Bus	36	Rev.	General Motors

Purchaser	No.	Type of Vehicle	Seating capacity or truck capacity in tons	Where to be used	Manufacturer
Minneapolis & St. Louis	1	Truck	½ ton	Co. Business	Chevrolet
	3	Automobile	5	Co. Business	Plymouth
	1	Automobile	5	Co. Business	Chrysler
Missouri-Illinois	1	Truck	1½ ton	Co. Business	Chevrolet
Missouri-Kansas-Texas	1	Truck	2 ton	Co. Business	Int. Harvester
	1	Automobile	....	Co. Business	Ford
Missouri Pacific	2	Truck	1½ ton	Co. Business	Int. Harvester
	2	Truck	1½ ton	Co. Business	General Motors
	28	Automobile	5	Co. Business	Chevrolet
	1	Automobile	4	Co. Business	Chevrolet
	3	Automobile	5	Co. Business	Plymouth
Missouri Pacific Transportation Co.	1	Bus	29	Rev.	.....
	2	Tractor	....	Rev.	.....
	2	Trailer	48	Rev.	.....
New Orleans & Northeastern	2	Truck	1½ ton	Co. Business	Int. Harvester
	1	Truck	½ ton	Co. Business	Ford
New York Central	3	Truck	½ ton	Co. Business	.....
	5	Truck	¾ ton	Co. Business	.....
	2	Truck	1½ ton	Co. Business	.....
	2	Truck	2 ton	Co. Business	.....
	2	Truck	5 ton	Co. Business	.....
Central Greyhound Lines	34	Bus	37	Rev.	General Motors
New York, Chicago & St. Louis	3	Truck	½ ton	Co. Business	Chevrolet
New York New Haven & Hartford	3	Truck	¾ ton	Co. Business	Chevrolet
	4	Truck	3 ton	Co. Business	Chevrolet
	3	Truck	3 ton	Co. Business	Ford
	1	Truck	¾ ton	Co. Business	Ford
	1	Truck	3 ton	Co. Business	Brockway Motor Car Co.
	1	Truck	5 ton	Co. Business	Brockway Motor Car Co.
	1	Truck	3 ton	Co. Business	Diamond T
	4	Truck	3 ton	Co. Business	Dodge
	2	Truck	8 ton	Co. Business	Studebaker
	1	Truck	5 ton	Co. Business	Studebaker
	3	Truck	7½ ton	Co. Business	Autocar
	2	Automobile	7	Co. Business	Packard
	3	Automobile	5	Co. Business	Ford
	4	Automobile	5	Co. Business	Buick
	1	Automobile	5	Co. Business	Nash
	2	Automobile	5	Co. Business	Dodge
	1	Automobile	5	Co. Business	Oldsmobile
	2	Automobile	5	Co. Business	Chevrolet
	8	Automobile	5	Co. Business	Hudson
	1	Automobile	5	Co. Business	Plymouth
	2	Automobile	5	Co. Business	Studebaker
County Transportation Co.	10	Bus	36	Rev.	General Motors
Berkshire Street Railway Co.	6	Bus	29	Rev.	Ford
New England Transportation Co.	15	Bus	37	Rev.	General Motors
	6	Bus	36	Rev.	General Motors
	10	Bus	41	Rev.	General Motors
New York, Ontario & Western	1	Truck	1½ ton	Co. Business	Dodge
Norfolk & Western	1	Automobile	5	Co. Business	Chevrolet
Norfolk Southern					
Norfolk Southern Bus Corp.	4	Bus	37	Rev.	General American Aerocoach Co.
	6	Bus	64	Rev.	Transport Coach Equipment Co.
	1	Bus	32	Rev.	Ford
	2	Tractor	....	Rev.	Dodge
	2	Tractor	....	Rev.	Chevrolet
Northeast Oklahoma	1	Bus	40	Rev.	Int. Harvester
Northern Pacific	3	Truck	1 ton	Co. Business	Int. Harvester
	1	Truck	¾ ton	Co. Business	Dodge
	7	Automobile	5	Co. Business	Chevrolet
	5	Automobile	5	Co. Business	Plymouth
	1	Automobile	5	Co. Business	Ford
	1	Automobile	2	Co. Business	Ford
	1	Automobile	2	Co. Business	Plymouth
Northwestern Improvement Company	1	Truck	1½ ton	Co. Business	Studebaker
	1	Tractor	....	Co. Business	Allis Chalmers Co.
Pacific Electric	1	Truck	1½ ton	Co. Business	Chevrolet
	2	Truck	1½ ton	Co. Business	Int. Harvester
Pennsylvania	1	Truck	½ ton	Co. Business	.....
	2	Truck	4 ton	Co. Business	.....
	1	Trailer	....	Co. Business	.....
	2	Automobile	5	Co. Business	.....
	1	Automobile	3	Co. Business	.....
Pennsylvania Affiliates	10	Bus	37	Rev.	.....
	2	Truck	Less than 3 ton	Rev.	.....
	11	Tractor	Less than 3 ton	Rev.	.....
	4	Tractor	3 ton to 5 ton	Rev.	.....
	4	Tractor	5 ton to 10 ton	Rev.	.....
	2	Tractor	Over 10 ton	Rev.	.....
	16	Trailer	3 ton to 5 ton	Rev.	.....
	4	Trailer	Over 10 ton	Rev.	.....
Pennsylvania-Reading Seashore	2	Automobile	5	Co. Business	General Motors
Pere Marquette	3	Truck	1½ ton	Co. Business	Chevrolet
	1	Truck	½ ton	Co. Business	Chevrolet
	1	Truck	¾ ton	Co. Business	Dodge
	1	Truck	1 ton	Co. Business	Dodge
	2	Truck	1½ ton	Co. Business	General Motors
	1	Automobile	5	Co. Business	Buick
	1	Automobile	5	Co. Business	Chevrolet
Pittsburgh & Lake Erie	1	Truck	1½ ton	Co. Business	General Motors
Portland Terminal Co.	2	Truck	1½ ton	Co. Business	General Motors
Reading	1	Truck	7½ ton	Co. Business	General Motors
	1	Automobile	5	Co. Business	General Motors
Richmond, Fredericksburg & Potomac					
Richmond Greyhound Lines, Inc.	15	Bus	37	Rev.	General Motors
St. Louis-San Francisco					
Frisco Transportation Co.	2	Bus	25	Rev.	Chevrolet
	1	Bus	20	Rev.	Chevrolet
	1	Bus	25	Rev.	Dodge
	2	Bus	28	Rev.	Dodge
	2	Bus	45	Rev.	Francis
	1	Bus	55	Rev.	Francis
	2	Truck	1½ ton	Rev.	Dodge

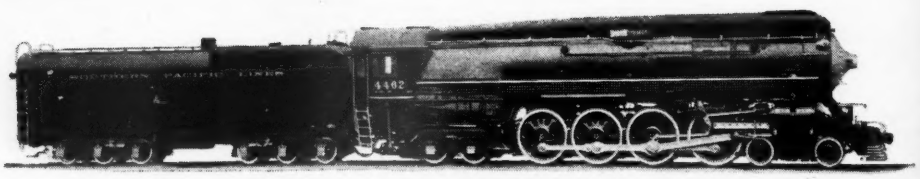
Continued on Third Left-Hand Page

Wartime's heaviest traffic

IS SPEEDED BY

LIMA SUPER-POWER STEAM LOCOMOTIVES

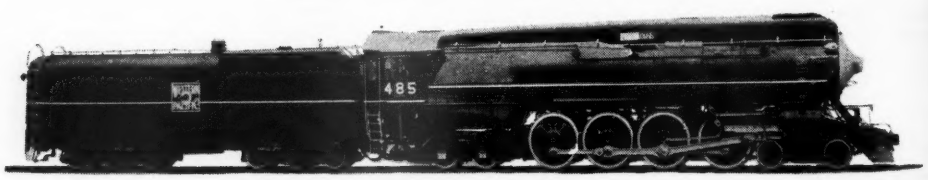
SOUTHERN PACIFIC LINES



4-8-4 TYPE LOCOMOTIVE

BUILT BY LIMA FOR THE SOUTHERN PACIFIC LINES

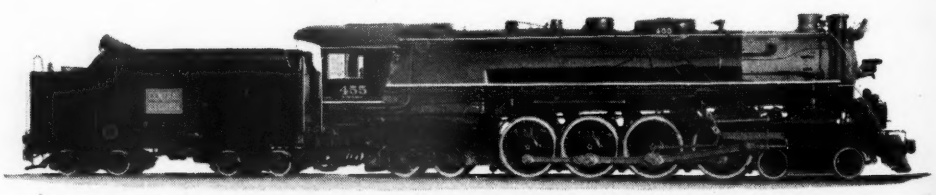
WESTERN PACIFIC



4-8-4 TYPE LOCOMOTIVE

BUILT BY LIMA FOR THE WESTERN PACIFIC RAILROAD COMPANY

CENTRAL OF GEORGIA



4-8-4 TYPE LOCOMOTIVE

BUILT BY LIMA FOR THE CENTRAL OF GEORGIA RAILWAY COMPANY

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE

for 2 very good reasons

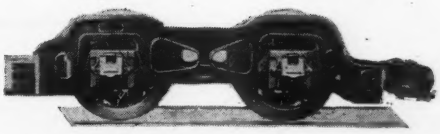
1.

Because they INCREASE *locomotive availability.*

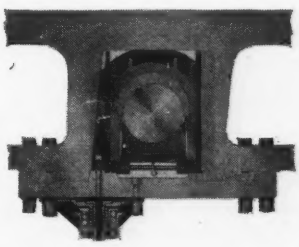
2.

Because they CONSERVE *railroad labor.*

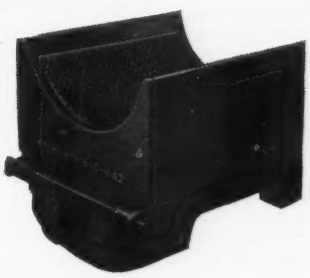
The Franklin devices illustrated herewith improve riding, eliminate slack and pound, and help the locomotive make quicker starts. They increase the capacity of locomotives, and reduce operating and maintenance costs.



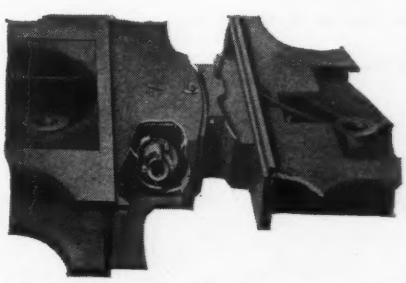
The Franklin Locomotive Booster increases your capacity to start and handle successfully today's heavier loads.



No air gap with the Franklin Automatic Compensator and Snubber. Constant, accurate, automatic fit at all times.



The new, lightweight Franklin No. 8 Combined Lubricator and Spreader increases mileage, lowers lubricating costs.



The Franklin E-2 Radial Buffer reduces locomotive maintenance costs and increases mileage and safety of high speed operation.

COMPANY, INC.

LIMITED, MONTREAL

NEW YORK
CHICAGO

Purchaser	No.	Type of Vehicle	Seating capacity or truck capacity in tons	Where to be used	Manufacturer
St. Louis-San Francisco					
Frisco Transportation Co. (continued)	2				
	2	Truck	1½ ton	Rev.	General Motors
	2	Truck	1½ ton	Rev.	Chevrolet
	3	Truck	1½ ton	Rev.	Int. Harvester
	1	Truck	1½ ton	Rev.	Ford
	1	Truck	½ ton	Rev.	Int. Harvester
	2	Tractor	2 ton	Rev.	Mack
	2	Tractor	1½ ton	Rev.	General Motors
	1	Tractor	3½ ton	Rev.	General Motors
	8	Tractor	1½ ton	Rev.	White
	11	Tractor	2½ ton	Rev.	White
	1	Tractor	3 ton	Rev.	White
	1	Tractor	2 ton	Rev.	Autocar
	4	Tractor	1½ ton	Rev.	Int. Harvester
	1	Tractor	3 ton	Rev.	Int. Harvester
	4	Tractor	1½ ton	Rev.	Chevrolet
	3	Tractor	1½ ton	Rev.	Diamond T
	2	Trailer	10 ton	Rev.	Fruehauf
	1	Trailer	9 ton	Rev.	Fruehauf
	9	Trailer	10 ton	Rev.	Trailmobile
	2	Trailer	10 ton	Rev.	Springfield
	1	Trailer	10 ton	Rev.	Highway
	7	Trailer	10 ton	Rev.	Superior
	6	Trailer	9 ton	Rev.	Superior
	1	Trailer	10 ton	Rev.	Kingham
	2	Trailer	15 ton	Rev.	Kingham
	3	Trailer	15 ton	Rev.	Bartlett
	2	Automobile	5	Co. Business	Chevrolet
	1	Automobile	5	Co. Business	Pontiac
	2	Automobile	2	Co. Business	Studebaker
St. Louis Southwestern					
Southwestern Transportation Co.	3	Tractor	3 ton	Rev.	White
	3	Trailer	4 ton	Rev.	Keystone
Southwestern Greyhound Lines, Inc.	1	Bus	41	Rev.	Dodge
	4	Automobile	....	Co. Business	Plymouth
	1	Automobile	....	Co. Business	Cadillac
Seaboard Air Line	1	Truck	....	Co. Business	Mack
	21	Truck	....	Co. Business	Chrysler
	6	Truck	....	Co. Business	Int. Harvester
	1	Truck	....	Co. Business	General Motors
	1	Truck	....	Co. Business	Federal
	2	Truck	....	Co. Business	White
	1	Truck	....	Co. Business	Reo
	1	Tractor	....	Rev.	Mack
	1	Trailer	....	Co. Business	Streamlite
	17	Automobile	5	Co. Business	General Motors
	1	Automobile	2	Co. Business	General Motors
	2	Automobile	5	Co. Business	Hudson
	1	Automobile	5	Co. Business	Nash
	4	Automobile	5	Co. Business	Ford
	6	Automobile	5	Co. Business	Chrysler
Southern	3	Truck	½ ton	Co. Business	Chevrolet
	2	Truck	¾ ton	Co. Business	Chevrolet
	3	Truck	1½ ton	Co. Business	Chevrolet
	2	Truck	½ ton	Co. Business	Ford
	5	Truck	¾ ton	Co. Business	Ford
	2	Truck	1½ ton	Co. Business	Ford
	1	Truck	1¼ ton	Co. Business	Int. Harvester
	4	Truck	1½ ton	Co. Business	Int. Harvester
	2	Truck	1½ ton	Co. Business	General Motors
	4	Truck	½ ton	Co. Business	Dodge
	1	Automobile	....	Co. Business	Plymouth
	3	Automobile	....	Co. Business	Chevrolet
	1	Automobile	....	Co. Business	Ford
Southern Pacific	1	Truck	1½ ton	Co. Business	.....
	1	Truck	½ ton	Co. Business	.....
	2	Automobile	5	Co. Business	.....
	1	Automobile	2	Co. Business	.....
Pacific Motor Trucking Co.	3	Automobile	5	Co. Business	.....
Pacific Greyhound Lines	20	Bus	37	Rev.	General Motors
	4	Automobile	5	Co. Business	Cadillac
Spokane, Portland & Seattle	2	Truck	1½ ton	Co. Business	Chevrolet
	1	Automobile	....	Co. Business	Chevrolet
	1	Automobile	5	Co. Business	Chevrolet
Texas & New Orleans	1	Truck	1½ ton	Co. Business	Chrysler
	1	Truck	¾ ton	Co. Business	Ford
	1	Truck	½ ton	Co. Business	Chevrolet
	3	Truck	1½ ton	Co. Business	Chevrolet
	1	Truck	½ ton	Co. Business	General Motors
	1	Tractor	1½ ton	Co. Business	Chevrolet
Southern Pacific Transport Co.	2	Tractor	1½ ton	Rev.	Chevrolet
	1	Trailer	1½ ton	Rev.	Nabors
Texas & Pacific	1	Truck	½ ton	Co. Business	Ford
	1	Truck	½ ton	Co. Business	Int. Harvester
	7	Automobile	5	Co. Business	Chrysler
	13	Automobile	5	Co. Business	Ford
	1	Automobile	2	Co. Business	Ford
	1	Automobile	5	Co. Business	General Motors
Texas & Pacific Motor Transport Co.	2	Truck	1½ ton	Rev.	Ford
	6	Truck	1½ ton	Rev.	General Motors
	1	Truck	½ ton	Rev.	Int. Harvester
	1	Tractor	2 ton	Rev.	Chrysler
	1	Tractor	2½-3 ton	Rev.	Int. Harvester
	1	Tractor	2½-3 ton	Rev.	General Motors
	5	Tractor	2½ ton	Rev.	Int. Harvester
	1	Tractor	2 ton	Rev.	Int. Harvester
Union	1	Automobile	3	Co. Business	Chevrolet
Western Pacific	1	Bus	....	Co. Business	Int. Harvester
	1	Truck	½ ton	Co. Business	Ford
	1	Truck	¾ ton	Co. Business	Chevrolet
	1	Truck	¾ ton	Co. Business	General Motors
	1	Automobile	5	Co. Business	Dodge
	2	Automobile	5	Co. Business	Plymouth
	1	Automobile	5	Co. Business	Ford
	1	Automobile	5	Co. Business	Nash
	1	Automobile	5	Co. Business	Chevrolet
Wheeling & Lake Erie	1	Truck	½ ton	Co. Business	Dodge
	1	Truck	¾ ton	Co. Business	Dodge
	3	Automobile	3	Co. Business	Dodge
	2	Automobile	5	Co. Business	Dodge
	2	Automobile	5	Co. Business	Plymouth
Wisconsin Central	1	Truck	1¼ ton	Co. Business	Int. Harvester

Railroads-in-War News

Railroads Are Seized by President to Avoid Strike

"Temporary" action is accompanied by raise of 5 cents and a week's vacation to op unions which rescinded strike

By an Executive Order effective at 7 p.m. on December 27 President Roosevelt directed the Secretary of War to take possession and control of the nation's railroads. Authority to issue the order was based on the President's war powers. It applied to all common carrier railroads, and also included terminal lines, express companies, sleeping car operators, and railroad-owned private car lines.

The Secretary of War was directed to permit the managements of roads to continue to function "in the usual and ordinary course of the business of the carriers," except as otherwise provided by orders or regulations issued by him or any agent to whom he has delegated such power. The executive order provided that the road's managements should continue to operate "to the maximum degree possible consistent with the purposes of this order."

Only Three Unions Held Out.—The order was issued, according to a White House statement, because the continued operation of the national transportation system was threatened by strikes called to commence at 6 a.m. December 30. At the time it was issued, the strike calls of the Brotherhood of Locomotive Engineers and the Brotherhood of Railroad Trainmen among the operating unions, and of all the so-called 15 co-operating non-operating unions, had been cancelled, and these unions had accepted, though not without conditions in some instances, the President's demand that they permit him to "arbitrate" the wage disputes affecting them.

The strike calls of the Brotherhood of Locomotive Firemen & Enginemen, the Order of Railway Conductors, and the Switchmen's Union of North America were still alive at the time the order became effective.

According to the terms of the President's order, the government's "possession, control and operation" of the railroads is "temporary," to be terminated by the Secretary of War as soon as he determines that its continued operation is no longer required to prevent interruption of transportation service.

The Order to Stimson

The text of the President's executive order, directing Secretary Stimson to seize the railroads (dated at the White House on December 27) reads as follows:

"Whereas the continuous operation of transportation service in the nation is necessary for the movement of troops, materials of war, necessary passenger traffic, and supplies and food for the armed forces and the civilian population, and is otherwise essential to the successful prosecution of the war; and

"Whereas the continuous operation of some transportation systems is threatened by strikes called to commence December 30, 1943;

Cites His Authority—"Now, therefore, by virtue of the authority vested in me by the Constitution and laws of the United States, including the act of Aug. 29, 1916, 39 Stat. 645, and as President of the United States and Commander in Chief of the Army and Navy, I hereby order:

"1. Possession and control of all common carriers by railroad, express companies, terminal companies and associations, sleeping, parlor and railroad owned or controlled private car companies (all hereinafter referred to as carriers) located in the continental United States, together with any and all appurtenances and facilities used in connection therewith, are hereby taken and assumed, through the Secretary of War, as of 7 o'clock p. m., on the twenty-seventh day of December, 1943.

"Carriers taken over under this order shall not include, because not now deemed necessary, street electric passenger railways, including railways commonly called interurbans, or local public transit systems whether or not the same be owned or controlled by any of the systems of transportation taken hereunder; but if and when the Secretary finds it necessary or appropriate to carry out the purposes of this order, he may, by subsequent order, take and assume possession, control and operation of all or any part of any transportation system, including subways and tunnels, and any transportation system so taken shall be deemed a carrier for the purposes of this order.

Wide Power to Stimson—"2. The Secretary of War is directed to manage and operate or arrange for the management and operation of the carriers taken under this order in such manner as he deems necessary to assure to the fullest possible extent

Somervell and Gross in Active Charge

Secretary of War Stimson issued the following statement late on December 27:

"In accordance with the Executive order of the President issued this day, I have taken possession and assumed control of the nation's railroads, for the purpose of assuring their continued and uninterrupted use in the prosecution of the war.

"I have designated Lieutenant General Brehon B. Somervell, commanding general of the Army Service Forces, to act for me in carrying out the provisions of the Executive order. Under General Somervell's immediate supervision, direct responsibility for operations will rest with Major General C. P. Gross, chief of transportation, Army Service Forces.

"General Somervell and General Gross will have the counsel of Mr. Martin W. Clement, president of the Pennsylvania Railroad, as their advisor and they will also have the assistance and advice of the staff of the Association of American Railroads, who have for the past two years been giving their full co-operation to the War Department in the transportation problems made necessary by our war effort.

"The co-operation of all the present managements of the railroads will be enlisted in the operation of their lines under regional headquarters, which are to be established by the government.

"I am also tendering appointment as labor consultants to General Somervell and General Gross to Mr. A. F. Whitney and Mr. Alvanley Johnston, the presidents of the Brotherhoods of Railway Trainmen and Locomotive Engineers.

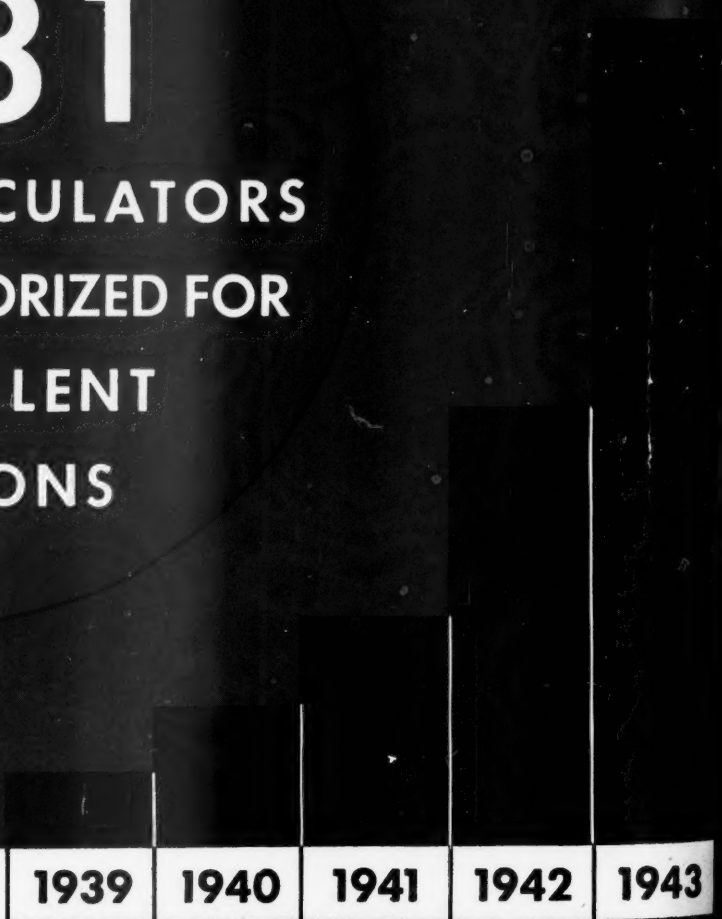
"We believe that the members of all the organizations of railroad employees will co-operate with the government now that it has taken over the railroads in the faithful performance of their duties so vital to the winning of the war.

"I know the American public will give full support to the War Department in its task of keeping the railroads running."

News Department continued on second left-hand page

There's a Swift Swing toward wide-

THE
APPLICATION OF
4181
SECURITY CIRCULATORS
HAS BEEN AUTHORIZED FOR
5 EXCELLENT REASONS



Progress of Installation of Security Circulators

AMERICAN ARCH

60 EAST 42ND STREET, NEW YORK 17, N. Y.

spread adoption of Security Circulators

1. **FOR POSITIVE FLOW OF WATER OVER CENTER OF CROWN SHEET**
2. FOR REDUCED HONEYCOMBING
3. FOR REDUCED FLUE PLUGGING
4. FOR REDUCED CINDER CUTTING
5. FOR BETTER ARCH BRICK SUPPORT

... ALL OF WHICH RESULTS IN GREATLY INCREASED LOCOMOTIVE AVAILABILITY

COMPANY, INC.

SECURITY CIRCULATOR DIVISION

continuous and uninterrupted transportation service.

"3. In carrying out this order the Secretary may act through or with the aid of such public or private instrumentalities or persons as he may designate, and may delegate such of his authority as he may deem necessary or desirable, with power of successive re-delegation.

"The Secretary may issue such general and special orders, rules and regulations as may be necessary or appropriate for carrying out the purposes of this order. All federal agencies shall comply with the directives of the Secretary hereunder and shall co-operate to the fullest extent of their authority with the Secretary in carrying out the purposes of this order.

Management Still in Charge—"4. The Secretary shall permit the management of carriers taken under this order to continue their respective managerial functions to the maximum degree possible consistent with the purposes of this order. Except so far as the Secretary shall from time to time otherwise provide by appropriate order of regulation, the boards of directors, trustees, receivers, officers and employees of such carriers shall continue the operation of the carriers, including the collection and disbursement of funds thereof, in the usual and ordinary course of the business of the carriers, in the names of their respective companies, and by means of any agencies, associations or other instrumentalities now utilized by the carriers.

"5. Except so far as the Secretary shall from time to time otherwise determine and provide by appropriate orders or regulations, existing contracts and agreements to which carriers taken hereunder are parties shall remain in full force and effect. Nothing in this order shall have the effect of suspending or releasing any obligation owed to any carrier affected hereby, and all payments shall be made by the persons obligated to the carrier to which they are or may become due. Except as the Secretary may otherwise direct, dividends on stock and sinking fund, principal, interest and other distributions upon bonds, debentures and other obligations may be paid in due course, and expenditures for other ordinary corporate purposes may be made.

Unions Not Curbed—"6. The Secretary shall provide protection for all persons employed or seeking employment. The Secretary is authorized to prescribe the compensation to be received by such employees subject to any approval which may be required by applicable statutes, executive orders and regulations relating to economic stabilization.

"To the extent deemed practical by him, he may maintain the working conditions which are specified in existing contracts between the carriers and their employees. He shall recognize the right of the workers to continue their membership in labor organizations, to bargain collectively through representatives of their own choosing with the representatives of the owners of the carriers, subject to the provisions of applicable statutes and executive orders, as to matters pertaining to wages to be paid or conditions to prevail after termination of possession, control and operation under this order; and to engage in concerted activities for the purpose of such collective bargaining or for other mutual aid or protection, provided that in his opinion such concerted activities do not interfere with the operation of the carriers.

Regulation Not Abrogated—"7. Except as this order otherwise provides and except as the Secretary otherwise directs the operation of carriers hereunder shall be in conformity with the Interstate Commerce Act, as amended, the Railway Labor Act, the Safety Appliance Acts, the Employers' Liability Acts, and other applicable federal and state laws, executive orders, local ordinances and rules and regulations issued pursuant to such laws, executive orders and ordinances.

Seizure Is Temporary—"8. Except with the prior written consent of the Secretary, no receivership, reorganization or similar proceeding affecting any carrier taken hereunder shall be instituted, and no attachment by mesne process, garnishment, execution or otherwise shall be levied on or against any of the real or personal property or other assets of any such carrier, provided that nothing herein shall prevent or require approval by the Secretary of any action authorized or required by any interlocutory or final decree of any United States court in reorganization proceedings now pending under the bankruptcy act or in any equity receivership cases now pending.

"9. From and after 7 o'clock p.m. on the said twenty-seventh day of December, 1943, all properties taken under this order shall be conclusively deemed to be within the possession and control of the United States without further act or notice.

"10. Possession, control and operation of any carrier or carriers, or parts thereof, taken under this order shall be terminated by the Secretary as soon as he determines that such possession, control and operation are no longer required to prevent interruption of transportation service."

White House Explains

The text of the December 27 White House announcement of the seizure of the railroads follows:

"The President today signed an executive order directing the Secretary of War to take over the railroads at 7 o'clock tonight to avoid interruption of transportation by threatened strikes.

"Mr. A. F. Whitney, on behalf of the Brotherhood of Railroad Trainmen, and Mr. Alvanley Johnston, on behalf of the Brotherhood of Locomotive Engineers, on Dec. 24 rescinded their strike orders and agreed to the arbitration of their pending disputes by the President.

Strike Orders Still Out—"At 5 o'clock p. m. the representatives of the non-operating employees' organizations informed the President that they had rescinded their strike orders. The carriers and the non-operating employees do not, however, agree upon the scope of the issues to be arbitrated by the President.

"Strike orders of the Brotherhood of Locomotive Firemen & Enginemen, the Order of Railway Conductors of America and the Switchmen's Union of North America are still in force.

"In signing the executive order taking over the railroads the President said:

Railroad strikes by three brotherhoods have been ordered for next Thursday. I cannot wait until the last moment to take action to see that

Executives, Made Colonels, Are Regional Chiefs

Secretary Stimson announced on December 28 that seven operating regions had been set up, each in charge of a railroad president who was commissioned a colonel in the Army. M. W. Clement, the Pennsylvania's president, is advisor to Generals Somervell and Gross.

The officers put in charge of the seven regions are: Eastern region, with headquarters at New York, Col. F. E. Williamson, president, New York Central; Allegheny region, with headquarters at Baltimore, Md., Col. R. B. White, president, Baltimore & Ohio; Pocahontas region, with headquarters at Roanoke, Va., Col. W. J. Jenks, president, Norfolk & Western; Southeastern region, with headquarters at Washington, D. C., Col. Ernest E. Norris, president, Southern; Central-Western region, with headquarters at Chicago, Col. Ralph Budd, president, Chicago, Burlington & Quincy; Northwestern region, with headquarters at St. Paul, Minn., Col. C. E. Denny, president, Northern Pacific; Southwestern region, with headquarters at St. Louis, Mo., Col. L. W. Baldwin, chief executive officer, Missouri Pacific.

Secretary Stimson again indicated that the Army intended to interfere with railroad management as little as possible. Its sole objective, he said, was to keep the railroads running. If the men refused to work, soldiers would run the trains, he asserted. In emphasizing the vital importance of uninterrupted rail service to the war effort, he referred to a letter written by Gen. H. H. Arnold, head of the Army Air Forces, in which that officer pointed out that the proper functioning of that branch of the service was so completely dependent on railroad transportation that any disturbance in it would result in irreparable losses.

The Secretary and General Somervell outlined generally the steps being taken by the Army to assign qualified officers to key points of the nation's railroad system, so that they would be on the spot if and when the necessity to take more direct action should arise.

Mr. Stimson also announced on December 28 that all wage scales and working agreements in effect at 7 p. m. on December 27, had been frozen as of that date, and would remain unchanged so long as army operation of the railroads is continued.

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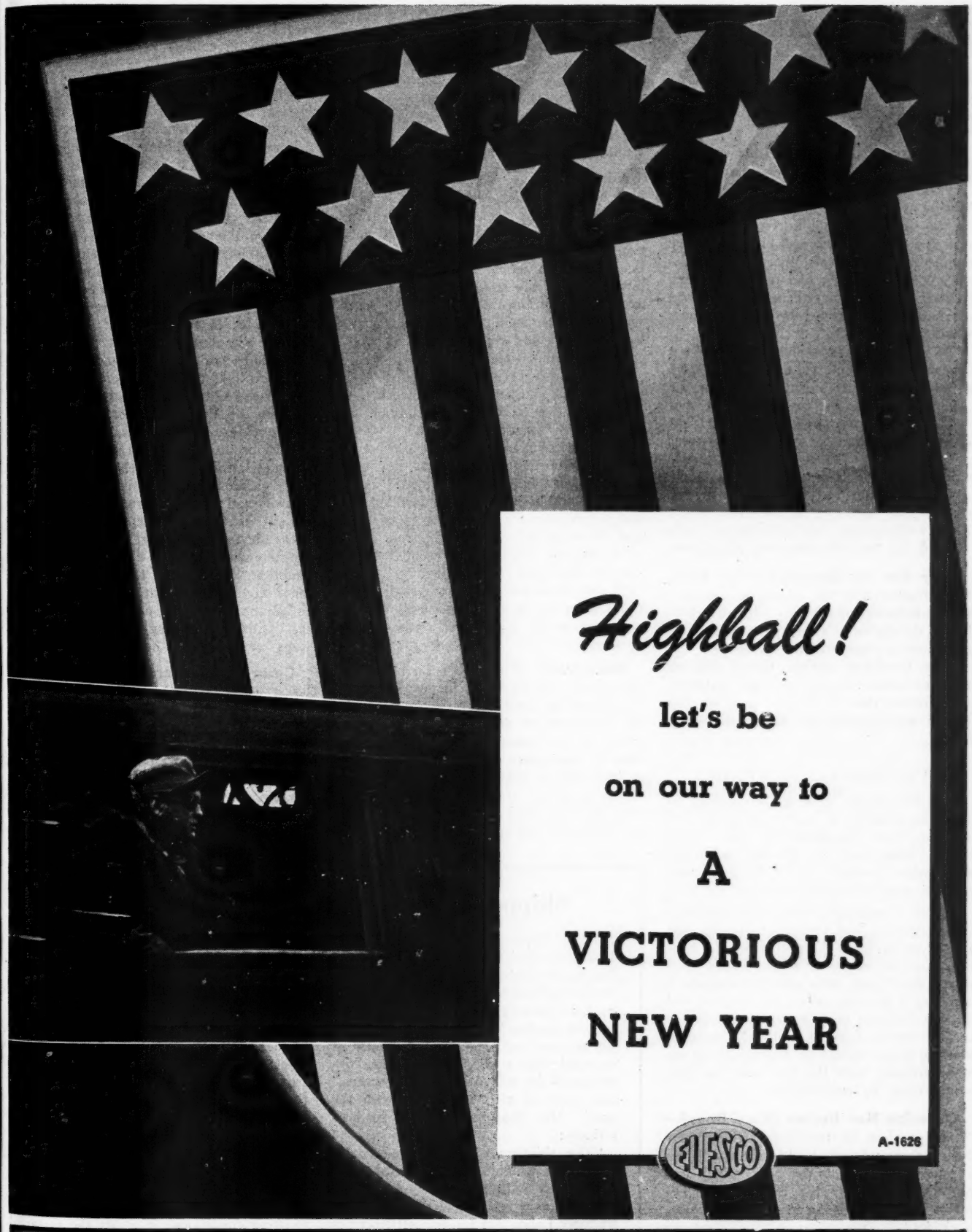

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the supplies to our fighting men are not interrupted. I am accordingly obliged to take over at once temporary possession and control of the railroads to insure their continued operation.

The government will expect every railroad man to continue at his post of duty. The major military offensives now planned must not be delayed by the interruption of vital transportation facilities. If any employes of the railroads now strike, they will be striking against the government of the United States.

5 Cents More Per Hour—"Before signing the executive order taking over the railroads the President rendered his decision as arbitrator of the disputes affecting the Brotherhood of Locomotive Trainmen and the Brotherhood of Locomotive Engineers. He affirmed the increase of 4 cents per hour which had previously been granted by the Stacy Emergency Board and had been approved by the Economic Stabilization Director.

"In addition, in considering claims not previously presented to the Stacy board or the economic stabilization director, he granted a further increase of 5 cents per hour effective immediately, in lieu of claims for time and a half for overtime in excess of forty hours a week and for expenses while away from home.

"He also approved a vacation of one week a year with pay at the basic hourly rate of employment. Such a vacation is now received by the non-operating employees.

Only for the Duration—"The President directed that his award be effective for the duration of the war without prejudice to the rights of either party thereafter to request a change in the agreement.

"The President further stated that he had been advised by the economic stabilization director that his decision was in conformity with the national stabilization program."

The Arbitration Award

The President's arbitration finding, in which he awarded a further increase of 5 cents per hour (in addition to the 4 cents already being paid) to the two operating unions which recalled their strike order, and also one week's vacation with pay, follows:

"After a conference with representatives of the carriers and the Brotherhoods, and after hearing from the parties to the controversies the statement of the issues upon which they have been unable to reach a decision, it was agreed by the carriers and the Brotherhood of Locomotive Engineers and the Brotherhood of Railroad Trainmen that the issues should be determined by me in accordance with the law and that they would abide by my decision.

Question Not Before Stacy Board—"1. By action of the Stacy Emergency Board, there was awarded to the employees an increase of 4 cents per hour, which was not disapproved by the Stabilization Director and is now being paid the employees.

"2. The employees ask for an additional increase in wages based upon claims not presented to or considered by the Stacy Board or the Stabilization Director.

"3. They ask for the payment of time and half for time worked in excess of forty hours per week. The Fair Labor Standards Act contains a provision excluding employees of railroads from the provisions of the act.

"Last May I announced that I believed railroad employees should be paid time and a half for time worked in excess of 40 hours per week, as practically all other employees are paid. This can be accomplished either by Congress repealing the exemption provision or by agreement of the employers and employees. I think it should be done by agreement.

Administrative Difficulties—"It has also been represented that as to a large proportion of the operating employees the exigencies of the railroad service and questions in respect of existing rules and practices create practical and administrative difficulties in the application of a strict overtime requirement. It was also represented that payment of time and a half to some and not regularly to all would create discrimination.

"It has also been represented that by reason of the character of their work these employees necessarily incur heavier expenses when away from home.

"After consideration of these representations I determine that 5 cents per hour, effective immediately, shall be paid as the equivalent of or in lieu of claims for time and a half pay for time over forty hours and for expenses while away from home.

"4. Among the issues presented to me was the claim for vacation pay.

"I determine that employees shall be entitled to a vacation of one week a year with pay at the basic hourly rate of employment.

Ends With War—"5. I further determine that the increases in pay above recited shall be paid until proclamation by the President or declaration by the Congress of the cessation of hostilities; and that the agreement now arrived at in time of war shall be without prejudice to rights of either party at the expiration of the date above stated to seek a change in the agreement which is now made.

"I am advised by the Economic Stabilization Director that the foregoing determinations are in conformity with the national stabilization program."

President as Arbitrator.—The White House statement also revealed that the President had "rendered his decision as arbitrator" of the disputes involving the engineers and the trainmen. This decision was made to be effective "for the duration of the war, without prejudice to the rights of either party thereafter to request a change in the agreement." This action was taken in conformity with the acceptance by the carriers and the two unions of what amounted to an ultimatum from the President on December 23 that they accept his decision as to the issues in disagreement or take the consequences.

While the railroads, the non-ops, and the engineers and trainmen had agreed to the President's demand that they accept his decision in the wage controversies, the White House statement indicated that the conditions attached to some of the union's acceptances did not entirely meet the terms of the demand. It was pointed out that "the carriers and the non-operating employees do not agree . . . upon the scope of the issues to be arbitrated by the President," and while the statement did not so state, the implication could be drawn that this lack of agreement contributed to the decision to put Secretary of War Stimson in charge of the railroads pending a solution of the wage controversies.

Color Controversy Included?—Interest attaches to the clause in the order to Secretary Stimson directing him to "provide protection for all persons employed or seeking employment." Some significance was ascribed to this provision because the President's Committee on Fair Employment Practice recently had been defied by a number of railroads and ignored by most of the railway unions upon

Shippers Had Called for Speedy Settlement

G. H. Shafer, president of the National Association of Shippers' Advisory Boards, on December 22 telegraphed to President Roosevelt from St. Paul, urging that the wage controversy be settled without further "governmental face-saving gestures"—to remove the danger of "a paralyzing strike," to continue "operation of the railroads by their owners," and, most of all, "to get on with the war." Mr. Shafer's telegram read as follows:

"The shippers of the United States have been watching the railroad wage controversy with growing concern. As the machinery set up under the National Railway Labor Act for the settlement of disputes between railroad management and their employees has never been efficacious in any nation-wide wage case, and in view of the concessions made to the miners and to employees of other industries in violation of the Little Steel formula, the public knows full well that wage increases will eventually be granted to railroad workers. Moreover, differences between the non-operating employees are entirely with government representatives — the railroads having agreed to satisfactory increases.

"Why not, therefore, be done with further negotiations and governmental face-saving gestures and settle this controversy immediately? It is well-known that the efficiency of the railroads is suffering because of the wage controversy at a time when the nation needs the fullest utilization of its transportation plant. Believe the shipping public wants this controversy settled immediately. It wants it settled as fairly as possible under existing conditions; it wants the threat of a paralyzing strike removed; it wants the continued operation of the railroads by their owners; and, most of all, it wants to get on with the war."

George H. Shafer
President, National Association of Shippers Advisory Boards

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Strike Likened to a Blitz by the Enemy

In a radio address on the evening of December 28, Secretary of War Stimson called for "the full devotion of all the men and women in the railroads' service." He described the organization which the War Department has set up to operate the roads, saying that "the Office of Defense Transportation and the Interstate Commerce Commission" will render assistance and continue to function in their normal way. The Secretary continued in part as follows:

"We believe that the members of all the organizations of railroad employees will co-operate with the government, now that it has taken over the railroads, in the faithful performance of their duties so vital to the winning of the war.

"There must be no interruption of service, no relaxation of effort. . . .

"The American nation has taken great pride in the patriotic devotion which railroad men and women have displayed under unprecedented demands which this war has placed upon them. During the present emergency, the railroads have been bearing more than 90 per cent of the burden of all transportation. . . .

"I am happy to say that they have responded magnificently to every call of the War Department and they have done so in the face of serious shortage of manpower and equipment. . . . The armed forces cannot discharge their responsibility for the national safety without the assistance of the railroads. . . .

"You all know that for months our 8th Air Force, based in Britain, has made a primary target of Europe's transportation system on which Hitler must depend to supply his fighting front. . . . Suppose we should hopelessly paralyze Nazi transportation, immobilizing Hitler's troops and guns and ammunition. For us this would be a military victory of tremendous magnitude. But it would be a military catastrophe of staggering proportions—for Hitler.

"Now this nation has faced a similar military catastrophe of equal and crushing magnitude in the threat to halt the operation of the railroads. By swift and decisive action it has been avoided. We shall not hand Germany and Japan this great military victory. The railroads will continue to run.

"It is unthinkable that the complex demands of modern war can be met without railroads. It is unthinkable that this nation can meet its own responsibilities in the coming offensive in Europe, in Asia and in the Pacific without their full assistance, working at the peak of their great operating capacity. The successful outcome of all our strategic plans depends upon this continued service. . . .

"The railroads have been taken over intact. There will be no alteration in the schedules, in service, or in personnel because of the change. The same men will operate the trains, the yards, the shops, the stations, and all other installations in precisely the same way as before. . . ."

which it had served cease-and-desist "directives" dealing with alleged discriminations in the employment of negroes on account of race or color, and on December 27 certified these cases to the President.

The same section of the order authorized the Secretary of War to "prescribe the compensation to be received" by all employees or persons seeking employment, "subject to any approval that may be required" under the statutes and orders implementing the economic stabilization program—that is, in effect, subject to the approval of Director Vinson. The Secretary was directed to permit all union functions to continue, including collective bargaining, so long as such activities do not, in his opinion, interfere with the operation of the carriers.

Non-op Settlement in Dispute.—Information that the non-ops had rescinded their strike order reached the White House at 5 p.m. on December 27, it was announced. At about the same time the news was made public at the unions' conference quarters, together with the terms of their acceptance of the President's "arbitration" of their wage controversy. While the unions' statement indicated that there was "no longer any dispute as to the amount" of the increase to be allowed the non-ops, but a disagreement only as to the form the increase should take, it appeared from the terms of the White House announcement that this view of the unions' spokesman was not beyond dispute.

According to the non-ops' statement, they decided in their meeting during the afternoon of December 27 to "abandon their objections" to the sliding-scale increase formula which, so Director Vinson informed the House committee on foreign and domestic commerce, was the only formula by which they were entitled to any wage increase under the stabilization program. Having arrived at that decision, their announcement went on to say, the non-ops were in a position to consider how an additional award in the form of overtime pay should be distributed among their members.

The non-ops' statement asserted that the railroads had offered them the benefits of the so-called wage-hour law, the Fair Labor Standards Act, which provides for time-and-one-half pay for work in excess of 40 hours per week, but which does not apply to railway employees because of an exception made at their instance when the statute was passed. The non-ops explained that they preferred to have the allowance for overtime in the form of a straight hourly wage increase—as was provided in the settlement dictated by the President in the case of the engineers and the trainmen—and therefore had sought such an increase in the amount of six cents per hour, to apply in addition to the sliding-scale 4-to-10 cents per hour award "not disapproved" by Director Vinson. This increase, their statement indicated, would be approximately equivalent in cost to the carriers to overtime paid after 40 hours per week instead of after 48 hours.

Time & a Half for Non-ops.—"While we prefer that the benefits of this overtime be distributed in a pro rata amount to all employees, if that is not agreeable to you," they announced they had informed the President, "we will accept the literal application of the fair labor standards provisions on overtime. Therefore there is no longer any dispute over the amount of wage increases to be granted to our group. The only remaining question in dispute is 'shall the non-operating group receive the benefits of overtime after 40 hours per week offered the operating group?'

"We agree to leave the decision on this single question in dispute to the President of the United States and agree to accept his decision," the non-ops said further. Having thus arrived at what they termed an accommodation of their immediate difficulties, the non-op leaders thereupon stated that they had "withdrawn their approval" to the employees to stop work on December 30.

This succession of statements and decisions on December 27 followed a lull in activity in face of the emergency threatened by the strike calls issued before Christmas, which had led to the intervention of President Roosevelt very soon after his return from his meetings with other United Nations' leaders.

A Week-End Lull.—Negotiations were virtually suspended during Mr. Roosevelt's absence from Washington over the Christmas holiday. On December 23 he had met with representatives of the carriers and the ops in one session and with the non-op leaders in another, giving each what amounted to an ultimatum to bring the respective controversies to an end. In the case of the ops, he demanded an answer to his request "immediately"—and received it the same afternoon. In the case of the non-ops, with whom he had not previously been in conference, more time was allowed for a final reply to his proposal, so that further discussions between that group, the stabilization officials and perhaps the railroads' conference committees might be pursued.

When it became evident that the ops and the roads were not likely to arrive at an agreement that would at the same time meet Director Vinson's requirements, the representatives of these two groups were summoned to a White House meeting at noon Thursday, December 23, at which the President made his demand for an immediate settlement on his terms. As made public at the White House that afternoon, Mr. Roosevelt's statement was as follows:

An Ultimatum.—"The war cannot wait, and I cannot wait. American lives and American victory are at stake. I want to know whether you object to my deciding this controversy immediately and whether you will abide by my decision, which of course must be within the law of the land."

The representatives of the brotherhoods

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and the carriers agreed to meet immediately to consider the President's offer and to let him know their decision that afternoon. It was subsequently revealed that Alexander F. Whitney, president of the Brotherhood of Railroad Trainmen, acceded to the proposal at once. The other union heads present considered themselves without authority to act on the demand until they had consulted with the responsible committees of their individual brotherhoods, however, and after a short meeting in the White House offices with the carriers' committee all the union leaders withdrew to their own quarters.

Shortly thereafter, the railroads notified the White House that they agreed to accept the President's settlement of the op dispute. Later that afternoon Alvanley Johnston, grand chief of the Brotherhood of Locomotive Engineers, gave that union's qualified acceptance of the President's terms, agreeing in effect to acceptance of his decision with respect to issues on which the unions and carriers had not been able to reach an agreement, but not with respect to those on which the parties had previously agreed.

The Brotherhood of Locomotive Firemen and Enginemen, Order of Railway Conductors, and Switchmen's Union of North America declined at that time to accept the offer of the President to decide the controversy.

Following this meeting, the President saw the non-op leaders, whose action on December 21 in calling a strike for December 30 had not until then inspired any evident action at the White House. It was understood that the President delivered to this group virtually the same ultimatum he gave the ops, but that he allowed them more time to make their reply, so they could confer further with the stabilization director and the railroads.

Pre-Xmas Threat of Seizure.—On the eve of his Christmas holiday, then, the President was faced with a refusal on the part of three operating brotherhoods to call off their strike, and with uncertainty as to what answer the non-ops would make to his demand. In that situation, an announcement was made at the White House late on December 23 which summarized the state of the negotiations and revealed that steps were being taken for the government to take over the nation's railroads in advance of the strike date if no settlement had been reached by that time.

This White House statement said:

"The President tonight directed the Attorney General to prepare the necessary documents for the taking over of the railroads by the United States government. No date for such action has been fixed.

"At a conference called this afternoon by the President he told the representatives of the carriers and the brotherhoods that there had to be a prompt settlement of the controversy. He stated that action had become necessary, that the war could not wait—that he would not wait.

"He asked that he be advised whether all parties to the controversy would agree to his arbitration of the dispute and would agree to abide by his decision, which, of course, would have to be within the law of the land.

"Shortly after the conference adjourned, A. F. Whitney, representing the Brotherhood of Railway Trainmen, advised the President that his organization was willing to have the President arbitrate, and would abide by his decision. John J. Pelley, president of the Association of American Railroads, informed the President that the representatives of the carriers unanimously had agreed to his arbitration of the dispute, and that they would abide by his decision. Alvanley Johnston, representing the Brotherhood of Locomotive Engineers, notified the President that his organization would agree to arbitration by the President, and would abide by his decision.

Three Hold-Outs.—"However, D. B. Robertson, representing the Brotherhood of Locomotive Firemen and Enginemen; Thomas C. Cashen, president of the Switchmen's Union; and H. W. Fraser, president of the Order of Railway Conductors, all advised the President that they refused to agree to arbitration by him.

"Later in the afternoon the President met with the representatives of the non-operating employees. The President advised them of what had transpired during the last few days in his various conferences with the operating brotherhoods. The same proposals for arbitration which he had made to the operating brotherhoods were repeated. The representatives of the non-operatives made it clear they had not declined the President's offer to arbitrate their disputes with the carriers. However, they presented to the President a new proposal for settlement of their disputes.

"At the request of the President, Justice Byrnes will tomorrow [December 24] submit this proposal to the carriers and to Judge Fred Vinson, Stabilization Director, for their consideration. The President again made it clear to the representatives of the employees that any settlement must be in accordance with the stabilization program."

It was reported that the "new proposal" of the non-ops amounted, in effect, to an increase of 6 cents per hour, in lieu of overtime pay for time worked above 40 hours a week, this 6 cents to be added to the sliding-scale increase of 4-to-10 cents per hour recommended by the special emergency board and "not disapproved" by the stabilization director. Previously the non-op leaders had asserted that they could not accept this sliding-scale increase because it would upset long-standing wage relationships within and between the different non-op unions, and by taking the case to the National Mediation Board they had prevented the railroads from putting it into effect at Director Vinson's direction.

Carriers Quickly Accept Arbitration.—On December 24 the non-op leaders met with the carriers' committees and Justice Byrnes to discuss this proposal and the roads' reaction to it. When this conference broke up without an agreement being reached, the office of Justice Byrnes issued this statement:

"The representatives of the carriers and the non-operating brotherhoods met in the conference room of the Office of War Mobilization. The representatives of the carriers were not present at the conference the President held with the representatives

When Will Federal Control Terminate?

At his press conference on the afternoon of December 28, President Roosevelt would not say definitely how soon the government could be expected to relinquish control of the railroads, or on what basis the decision to do so would be made.

When asked if the government would keep control of the roads for the emergency, he gave an affirmative answer. When asked if that meant the emergency created by the impending strike or the general emergency arising out of the war, he said only that government control would continue for the emergency. If all railroad men continued at work, he did not know that it would be necessary to continue government control.

At another point the President was asked if the Smith-Connally Act applied to the railroads. When he said it was his understanding that it did, the question was raised whether that meant relinquishment of government control of the roads within 60 days after efficient operation was restored. He said it did, but there might be some question of the interpretation put on the term "efficient operation" as used in the Smith-Connally Act.

The President's discussion of the railroad situation at the time of his press conference began when he remarked that he had received from the War Department on Friday, December 24, a book containing detailed plans for the operation of the railroads by the Army, including actual assignment of officers and troop units. This sort of planning made it possible to put the Executive Order of 7 p. m. December 27 into effect the following morning, he remarked, and showed how planning should be done and how it paid.

At the time of the press conference, the President said he had received no further news from the three operating unions whose strike orders had not been withdrawn; so he did not then know what those brotherhoods were going to do. He then remarked that all railroad workers were now employees of the government.

As to the non-ops, the President said that no specific questions in dispute had been put before him to be arbitrated. He was still trying to get the unions and the carriers to agree upon what to arbitrate. He did not answer directly when asked whether a decision in this dispute would be rendered while the roads remained under government control.

The President answered in the affirmative when asked if it was true that under the Smith-Connally Act a railroad strike could not legally be effected.

of the brotherhoods yesterday afternoon. Justice Byrnes advised the carriers' representatives that the President desired to know whether they would object to his arbitrating the differences between the carriers and the non-operating brotherhoods.

"The representatives of the carriers stated that they were entirely willing to agree that the President should arbitrate the differences just as they had agreed in the case of the operating brotherhoods. The representatives of the non-operating brotherhoods yesterday declined to answer either affirmatively or negatively whether they would agree to arbitration by the President. The Justice asked if they were now willing to have the President arbitrate.

"The representatives of the non-operating brotherhoods stated that they were in the same position they were yesterday; that they did not wish to answer either yes or no. They said they understood they were to discuss with the carriers the proposals they had suggested to the President yesterday.

"Justice Byrnes stated that if they reached an agreement, it would have to be in accordance with the stabilization program, and if they wished to have the decision of the stabilization director as to any agreement arrived at, Judge Vinson would be available. Justice Byrnes and Judge Vinson then withdrew from the conference.

"No agreement was reached, and the conference adjourned at 5:30 p.m."

Vinson Was Non-ops Obstacle.—Later on December 24 spokesmen for the non-ops indicated that they did not expect to have much difficulty in arriving at terms to which the railroads and the unions could agree, but they were less optimistic as to meeting the stabilization director's requirements. Bert M. Jewell, chairman of the group, was quoted as saying there was little hope of a settlement if "someone" insisted on conforming to a particular formula. The conclusion was generally drawn from remarks made by the non-op leaders that they would be willing to have the President himself settle the terms of the wage increase they are to receive, but hesitated to enter into an agreement which would let Justice Byrnes or Judge Vinson formulate the terms.

Meanwhile, the split in the ops' ranks developed further. The three brotherhoods that had refused to yield to Mr. Roosevelt's proposal that he should set the terms of their wage increase continued to make preparations for a strike to become effective, according to the information they allowed to become public. The heads of the B. of L. E. and B. of R. T., on the other hand, took action to call off the strike of their members, and jointly gave out a statement to the effect that they had agreed to "make great sacrifices . . . to win the war."

4 Stars Can't Make Them Work.—They made it clear than any settlement of the controversy that the President might make in carrying out the proposal they had accepted probably would only be a temporary settlement, and they disclaimed any "permanent guarantee" that the railway wage controversy would be ended by acceptance of such terms. Unless they obtained "justice" through the operation of the stabilization machinery, they declared, "chaos" would result, and "no one man or power, whether he be the President of the United States, a four-star general, or a union officer," would be able to keep their men regularly at their accustomed work.

It was understood that the proposal submitted to the President by the non-ops on December 23 for an increase of 6 cents per hour in addition to the sliding-scale award accepted by Director Vinson was based on an analysis of the overtime pay situation in effect on the railroads that was included in the report of the emergency board—the so-called Sharfman board—which made the award of 8 cents per hour disapproved by Mr. Vinson.

In this report the board pointed out, as reported in *Railway Age* of May 29, 1942, page 1095, that railway employees have not benefited by the recent trend toward overtime pay after 40 hours work per week. While no demand for overtime pay was before the board, and it made no recommendation that any change in overtime pay practices be made, it did remark that, "if these employees were to be compensated at time-and-one-half for work in excess of 40 hours per week; that is, on the basis that is being increasingly applied in industry as a whole —an adjustment of 8.33 per cent on basic rates of pay would result. This would mean an increase in pay of slightly more than six cents an hour independently of any change in basic rates of pay." Thus the non-ops' proposal of an increase of 6 cents per hour in lieu of overtime above 40 hours per week is in line with this analysis. The view of the carriers toward this proposal was not made public, but it was evident that they were not disposed to accept it forthwith, and it was understood that substitute proposals were made which were considered by the non-ops in their meeting on December 27.

4 Cents Not Enough.—In the ops' case, on the other hand, the President's proposal of an increase of 4 cents per hour in lieu of overtime over 40 hours was accepted by the roads, but rejected by the brotherhoods, who demanded additional concessions, it was disclosed, particularly a straight hourly increase greater than the 4 cents per hour approved by Director Vinson as the maximum to which the Little Steel formula entitled them.

As noted in *Railway Age* of December 18, 1943, page 984, the National Mediation Board undertook to carry out its functions, under section 5 of the Railway Labor Act, as soon as a strike call was issued by the operating unions, only to be superseded by Mr. Roosevelt, who called the parties to meet with him in Washington on the day before the board's scheduled meeting in Chicago. With this recent experience as a precedent, the board took no action when the non-ops' strike call was issued, but released an announcement to the effect that it was "considering" the case and "consulting" the White House, but would not take jurisdiction under the Railway Labor Act until it received White House advice to do so.

The developments of December 23, which led to the split in the ranks of the so-called "Big Five" brotherhoods, to the resumption of White House negotiations by the non-ops, and to the preliminary steps leading to government operation of the roads, all followed several days of intensive but relatively unfruitful discussions in Washington among the disputants.

The first of these were described in *Railway Age* last week. Following the trip to the White House on the afternoon of December 21 of the 54 general chairmen composing the ops' committee, and the announcement that night of the non-ops' strike call, conferences between the ops and the carriers' committee were resumed on December 22. When these meetings broke up a spokesman for the carriers said that no agreement had been reached at any point, and others who attended were unable to go further than to agree that there had been discussions that might promote a "meeting of the minds" later.

Ops Had New Wage Demands.—It was understood that the operating brotherhoods at that time were holding out for wage adjustments considerably broader than the roads were willing to concede, or than had been proposed by the President. Among the demands made by the unions the foremost was said to be for a straight wage increase of 8 cents per hour in place of the 4 cents approved by Director Vinson. Others were reported to include vacation with pay, away-from-home expense allowances for train service employees, equivalent pay raises for yardmasters and members working on a monthly basis, and revision of the mileage basis of pay to apply the new rates to the so-called basic day. Various provisions to guarantee the employees against revisons in working assignments that might affect the amount of overtime received also were said to be included in the unions' proposals.

The proposal made by the President, beyond which the roads did not indicate much inclination to proceed at that stage of the discussions, was for a total increase of some 8 cents per hour, of which the award of the emergency board, allowed to become effective by Director Vinson, accounted for 4 cents in the form of a straight wage raise, while the other 4 cents would have been made available through overtime payments, away-from-home allowances, or other adjustments in lieu of overtime. When the representatives of the carriers and the brotherhoods were called to the White House on December 23 they stated their positions with respect to the various proposals that had been considered, it is understood, and the President's demand that all parties immediately accept his decision in the controversy apparently was made after he had heard these statements.

Most Congressmen Not in D. C.—In the absence of most members of Congress from Washington during Christmas week, there was relatively little comment from that quarter upon the wage negotiations. Some of those who were around and willing to express themselves appeared to believe that the seizure was unduly precipitate.

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All Railroad Records Were Broken in '43

Performance reviewed in year-end statement from A.A.R. President Pelley

Reviewing railroading in 1943, J. J. Pelley, president of the Association of American Railroads, in a year-end statement issued this week, reported that "all transportation records were broken" last year as the railroads handled "the greatest volume of freight and passenger traffic in their history." His statement continued as follows:

75 Per Cent Over '18—"Freight traffic moved by the railroads in the current year amounted to 725,000,000,000 ton-miles. This was an increase of 14 per cent above that for 1942, the previous record year, and 117 per cent more than in 1939. It was more than one and three-quarters times the volume moved in 1918, the peak year of World War I. Freight car loadings in 1943 approximated 42,350,000 cars, a decrease of 475,000 cars or 1.1 per cent below 1942. Heavier loading of freight cars and longer hauls per ton accounted for the increase in the ton-mile volume of freight, contrasted with the decrease in the number of cars loaded.

"Passenger traffic in 1943 was by far the greatest for any year in railroad history. It amounted to 85,000,000,000 passenger-miles. This was an increase of 58 per cent above 1942, twice what it was in 1918, and nearly four times what it was in 1939. The heavy movement of passengers in 1943 can be attributed in part to Army troop movements, more than ten million men having been moved in special trains and special cars. This does not include the millions of soldiers, sailors, and marines on furlough who traveled during the year, nor does it include small groups of individuals moving on order, nor Navy and Marine Corps movements, nor prisoners of war.

"On the basis of the present outlook, freight traffic in 1944 is expected to increase between two and five per cent. An increase of between 10 and 20 per cent in passenger traffic is anticipated.

Some of the Records—"Outstanding operating records established by the railroads in 1943 follow:

"1. Average load of freight per train was 1,116 tons, the highest on record. In 1942 it was 1,035 tons.

"2. Performance per freight train more than doubled in 20 years, gross ton-miles per freight train hour having increased from 16,764 in 1923 to 36,079 in 1943, while net ton-miles per freight train hour increased from 7,770 in 1923 to 17,022 in 1943.

"3. The average load per car of carload freight was 41 tons in 1943 compared with 40.1 tons in 1942.

"4. Average daily movement of freight cars was 51.2 miles in 1943 compared with 48.8 miles in 1942.

"5. Average haul of freight was 480 miles in 1943, compared with 428 miles in 1942.

"6. The average number of passengers per car and per train was much greater than ever before.

"7. Average daily movement of both freight and passenger locomotives attained a high record, that of the former being 125 miles compared with 122.4 miles last year and the latter, 220.3 miles compared with 206.8 miles one year ago.

"8. Average revenue for hauling a ton of freight one mile was 0.933 cents compared with 0.932 in 1942. These averages are the lowest since 1918.

"9. Average capacity of freight cars was 50.8 tons at the end of 1943, the highest on record.

"10. Tractive power of steam locomotives averaged 52,548 pounds at the end of 1943, the highest ever recorded and an increase of 34 per cent compared with twenty years ago.

"The increase in freight traffic was handled this year by the railroads in the face of an increase of less than one per cent in the number of freight cars and an increase of only 1.4 per cent in the number of locomotives owned. There was no appreciable change in the number of passenger cars owned.

"Railroads in the first eleven months of 1943 installed in service 26,433 new freight cars and 656 new locomotives. They had on order on December 1, 1943, 36,253 freight cars and 1,004 locomotives. In order to take care of increased traffic and replace worn out equipment, they are expected to need between 40,000 and 50,000 new freight cars and about 1,200 locomotives by next October."

O. D. T. Fears Let-down in Oil Movement

A warning that difficulties are again looming in domestic oil transportation was issued December 27 by the Office of Defense Transportation to shippers, transporters, and receivers of petroleum and petroleum products.

Despite the completion of the "Big Inch" crude pipeline and the near-completion of the "Little Big Inch" products line from East Texas oil fields to refining centers on the East Coast, the ODT said that changing domestic conditions make it imperative that there be no let-down in the transportation effort.

The warning listed three factors which are operating to increase the complexity of domestic oil transportation:

1. A disposition among shippers, receivers, and the railroads to assume that the tank car situation is easing.

2. The shifting of tank cars from so-called "symbol routes" (solid trainload operations) to many smaller runs in all parts of the country.

3. The serious situation in over-the-road tank truck transportation of oil due to a severe shortage of heavy-duty tires and repair parts, the obsolescence of equipment, and the shortage of manpower.

It was explained that at a meeting of the O. D. T. tank car committee in Washington last week, it developed that shippers and receivers of oil feel that the supply of tank cars is getting easier, with the result that they are not loading or unloading them as promptly as they should. This feeling, the committee members explained, is spreading to the railroads, with the result that many of the "symbol" trains are operating considerably behind schedule.

1943's Rolling Stock To Come Late in Year

Much of it in last quarter after traffic peak has been passed

Optimism with respect to the 1944 equipment outlook must be tempered by the fact that much of the expected increase in freight car production for domestic use will not come until the third and fourth quarters with the bulk of deliveries thus delayed until after the fall traffic peak. While there is now no difficulty in getting materials, the capacity of the builders' shops during the first half of next year will be largely taken up by government orders for cars to meet lend-lease commitments and other war requirements.

This was brought out in presentations made by Director Joseph B. Eastman of the Office of Defense Transportation and Deputy Director C. D. Young at a December 23 hearing before the special Senate interstate commerce subcommittee investigating the railroad transportation situation in accordance with Senate Resolution 185. Previous hearings before the subcommittee which consists of Senators Stewart of Tennessee, chairman, and Johnson of Colorado, Democrats, and Reed of Kansas, Republican, were reported in the *Railway Age* of November 13, 1943, page 770.

Some Passenger Cars, Maybe—The situation is much the same with respect to passenger cars which are now expected to be available next year. General Young pointed out that there has been no passenger-car production since 1941, and that it will take time to reconvert plants. Hence he does not think there can be many passenger cars built much before next year's fourth quarter, even under the "most optimistic view" of the outlook.

Looking at next year as a whole, however, Director Eastman repeated what he had said in a recent press conference, i.e., that the railroads are satisfied with the prospects for locomotives in 1944, and "are not yet taking advantage of all opportunities available for ordering freight cars." In the latter connection, he explained again that the reluctance to place orders has been due to uncertainties as to the continuation of arrangements for amortization of the equip-

(*Continued at top of next page*)

The oil industry was warned that with the coming of freezing weather in the unloading territory and the increased loading of all commodities, the shippers and the railroads must be constantly on the alert to speed up the loading, unloading and moving of tank cars.

As fast as tank cars have been released from the Norris City, Illinois, tank car pool, due to the completion of the "Big Inch" crude pipeline, they are being shifted to other movements, the statement pointed out. At the present time, no tank cars are being used to transport crude oil from Norris City, the former terminus of the "Big Inch" line, and the cars released have been absorbed in other important movements.

ment over a five-year period; the past insistence of the War Production Board that cars must be of the so-called composite design; and the inability to obtain the desired amount of alloy steels for use in locomotive construction.

All of these matters are now being adjusted, he added. A recent executive order transferred to the chairman of W.P.B. the authority (recently relinquished by the War and Navy departments) to certify projects for five-year amortization; W.P.B. has announced that it will permit the construction of all-steel freight cars in 1944; and the easing materials situation is expected to make available the alloy steels desired for locomotive construction.

Carriers Slow to Place Orders—Nevertheless, Mr. Eastman revealed that the railroads are not disposed to place orders for as many freight cars as O.D.T. thinks should be acquired next year. Builders' plants, he said, are expected to have capacity for the production of 70,000 cars for domestic use; and O.D.T. would like to see 70,000—even 80,000—built. But the railroads have reduced their 1944 request from the 84,000 which they were disposed to ask for last July to 50,000, and they have now placed orders for about 45,000. Mr. Eastman gave no figures on locomotives, but he said that railroad orders pretty nearly covered the allotment.

With respect to passenger-car prospects, Mr. Eastman pointed out that the opportunity for resumption of production next year is due particularly to the easing of the aluminum situation. He recalled that O.D.T.'s first request for allotments asked for 2,000 passenger cars; but W.P.B. and its predecessors have up until now been "adamant," listening to no suggestion that passenger equipment be built save the 1,600 troop sleepers and kitchen cars authorized in 1943.

Only Modern Passenger Cars Wanted—Meanwhile, he expects that the railroads may be reluctant to order passenger cars because in that field they will be looking forward to the post-war competitive situation when they will want to have the most modern equipment available. In that connection there is the uncertainty as to whether critical materials will be available to install air-conditioning equipment on next year's passenger cars, Mr. Eastman explained. And General Young suggested that the railroads don't know how much passenger business they will have when automobiles get tires and gasoline again.

Before getting into his discussion of the 1944 equipment outlook, Mr. Eastman had outlined O.D.T.'s past relationships with the materials-allocating authorities; and he also touched upon the rail situation. In the former connection the O.D.T. director recalled that the transportation industry was first represented on the W.P.B. only through the Office of Civilian Supply. That was changed in December, 1942, when O.D.T. was made a claimant agency under the Controlled Materials Plan; and finally in April, 1943, Mr. Eastman became a member of W.P.B.

Deficiency in Rail—In the latter role, he said, he has realized more than ever before how enormous the demands for steel for military use have been. As to materials for the construction of facilities, other than rail, the O.D.T. thinks the allotments have been "satisfactory." In 1942 and 1943, however, the W.P.B. did not allocate the rail requested by the O.D.T.; and O.D.T. requests were somewhat below what the railroads had asked for. As Mr. Eastman put it, the deficiency under O.D.T. requests at the end of 1943 amounted to 260,000 tons, while the deficiency under what the railroads asked for was 561,000 tons.

For 1944, the railroads have requested 2,500,000 tons of rail. The O.D.T. request to W.P.B. seeks 2,200,000 tons. W.P.B. has given assurances that 1,800,000 tons will be forthcoming, plus whatever additional amount can be produced after the government's requirements are met. On this basis Mr. Eastman expects the 1944 total to be about 2,000,000 tons. He also expressed the opinion that O.D.T. requests have called for enough rail to permit reasonably safe and efficient operation, adding in response to a question that there has been no interference with the movement of traffic because of track conditions.

With respect to equipment, Mr. Eastman asserted that W.P.B.'s past failure to meet O.D.T. requests has been "more pronounced." In that connection, he went on, the O.D.T. and the railroads have been in closer agreement as to what the allocations should be. He also pointed out that even the inadequate amount of equipment allotted has not always been forthcoming because of serious slippages in production schedules. That situation became "extremely serious" about the middle of 1943, when O.D.T. protested to W.P.B. Chairman Donald M. Nelson. Slippages have now been "practically overcome."

Circuity Overstated—Coming to O.D.T.'s duty to secure maximum utilization of equipment, Mr. Eastman pointed out that here there is close cooperation with the Association of American Railroads and the Interstate Commerce Commission. He proceeded to outline the work of his divisions of Railway Transport and Traffic Movement. Then came a question from Senator Reed about circuitous routing, and Mr. Eastman tossed it to Director Henry F. McCarthy of the Division of Traffic Movement.

Mr. McCarthy agreed with Senator Reed's statement that the effects of circuitous routing have been "overstated." The average amount of circuity, Mr. McCarthy went on, has been about 11 per cent, and he called this "a small premium" to pay to insure liquidity and use of all railroad facilities. He conceded that there are some circuitous routing abuses, adding that O.D.T. has decided to handle them on the cooperative basis which it prefers, rather than to issue some "strait-jacket rule."

Moreover, Mr. McCarthy explained that it is necessary to use circuitous routes to handle the volume of traffic now moving. He cited the east-coast petroleum movement as an example, pointing out that the volume there could not be moved over direct routes. Whereupon Senator Reed suggested that a distinction should be made between "perfectly ridiculous" routings, and the use of railroads of different mileages between main points.

Government Dislikes Barges—Asked to explain the "decrease" in traffic on the inland waterways, Mr. Eastman said that the waterways were being used to capacity except that there had been "quite a drop" in the southbound movement on the Mississippi. He explained that this drop was due to the fact that much of the traffic involved was steel products moving for the account of government agencies. These agencies preferred the faster rail service because it enabled them to keep inventories lower. Also, as Mr. Eastman noted, the railroads along the Mississippi have a preponderance of empty movement southbound. Meanwhile, the northbound movement on the Mississippi, principally commodities in bulk, "has been much heavier than normal."

Discussing the situation generally, Mr. Eastman repeated again his recent warning that the next few months will be the tightest thus far experienced. The coal movement, he said, has assumed "record proportions"; troop movements are "very heavy"; and the grain and livestock movements have been of "abnormal proportions." Here the O.D.T. director outlined arrangements which are being made to move from Canada into this country some 75,000,000 bushels of grain acquired by the Commodity Credit Corporation for feed purposes.

Where Labor Is Short—A discussion of the manpower situation was launched by H. C. King, chairman of the I.C.C.'s Bureau of Service, who said that this subject, uppermost in the commission's mind, would be touched upon at a later hearing by Commissioner J. Monroe Johnson, who was unable to appear December 23. "We are extremely concerned about the present condition of the railroads due to the manpower situation," Mr. King said. Whereupon Mr. Eastman and Director Otto S. Beyer of O.D.T.'s Division of Transport Personsel discussed the matter briefly.

The former referred to the situation on the Pacific coast where there have been serious shortages of track labor and switching crews. Senator Stewart wanted to know if recent wrecks could be attributed to the shortage of track labor. Mr. Eastman said he could not discuss all wrecks, but he understood that the recent one on the Atlantic Coast Line was due to a rail fissure which was not registered by a detector car that went over the territory a month before. He added that this would not have been a serious accident except for the failure to flag down the northbound train. "That," said Senator Reed, "was the stupidest piece of business ever heard of on a railroad."

Mr. Beyer listed Baltimore, Md., and Buffalo, N. Y., among the tightest spots from a manpower standpoint which have developed recently. He also revealed that 20,000 Mexicans have thus far been imported for track work; and that they are employed on roads in all sections of the country. Mr. Eastman told the subcommittee that Mr. Beyer had foreseen manpower trouble before anyone else. The railroads were not excited at first, he said, and for a while Mr. Beyer seemed "like a voice crying in the wilderness."

The subcommittee held an executive session on the afternoon of December 23 to hear presentations from representatives of the War Department with respect to troop movements.

GENERAL NEWS

Would Rather Stand Than Stay at Home

Experience of carriers during Christmas week-end leads to this conclusion

Patrons fighting to board loaded trains and preferring to stand in the aisles rather than wait for later trains or not travel, were experienced by some of the railroads in the West during the holiday period this year. In general the patronage this year was greater than that of the holiday season last year, some railroads reporting as much as a 20 per cent increase in the number of persons transported. Requests for tickets and space likewise exceeded those of last year. On some of the railroads at Chicago, the requests were three times the capacity of the trains.

The increase in the demand for railroad accommodations was due mainly to the large number of persons wishing to visit persons in service. Military personnel traveling on furlough or business constituted a considerable portion of the travel this year, but a survey of the railway stations in Chicago indicated that the major portion of those traveling were en route to camps to visit friends or relatives. A portion, smaller than usual, consisted of business people, away from home, returning for the holidays while another portion, the smallest group, included persons "just spending the holidays with the folks."

The increase in the number of persons carried by the railroads during the Christmas holiday season this year, compared with last year, was due to a greater utilization of equipment rather than to any material increase in the number of cars in service, although some railroads, during the year, converted box cars, lounge and parlor and old sleeping cars into coaches. Heavier patronage of trains that have not been filled to capacity, a shifting of cars to meet peaks and the sale of seats in sleeping cars were responsible for some of the greater utilization of equipment but the major factor was the insistence of travellers to board coaches, even though they had to stand in the aisles. One Florida train, for example, left Chicago with 100 persons, with destinations up to 300 miles, standing in the aisles.

The heavy rail patronage this year occurred in spite of the efforts of the railroads to discourage travel but their attempts to inform the public of the limitations of railroad passenger facilities were not unheeded. It is believed that if no effort had been made, the demand would have been several times greater than it was. As it was, those planning to travel made arrangements in advance or if they could not secure the accommodations they wished, they did not travel. Last-minute travelers accepted the situation philosophically and either waited for the next train or boarded crowded trains, willing to stand. In a few instances where the railroads attempted to discourage standing, the patrons pushed past the attendants and boarded the trains.

Travel from Chicago to Florida reached a peak during the Christmas season with the railroads able to take care of only one third of the requests. The handling of this heavy Florida passenger travel was made difficult for the railroads by the large amount of military express traffic which had to be handled on passenger trains because the lack of locomotives precluded the operation of solid trains of military supplies. One railroad reported that it handles 20 to 30 cars of Minnesota milk each night on its passenger train from Chicago to Florida.

Railroad Presidents' Day

The Traffic Club of Chicago and the Mid-West Shippers Advisory Board will observe Railroad Presidents' Day at a luncheon on January 6. The subject for discussion will be Transportation in 1944 and the speakers will be: L. W. Baldwin, chief executive officer of the Missouri Pacific; J. L. Beven, president of the Illinois Central; Ralph Budd, president of the Chicago, Burlington & Quincy; W. M. Jeffers, president of the Union Pacific; and H. A. Scandrett, trustee of the Chicago, Milwaukee, St. Paul & Pacific.

C. I. O. Commends the Color Line Erasers

President Philip Murray of the Congress of Industrial Organizations recently sent a telegram to President Roosevelt in support of the action of the Fair Employment Practices Committee ordering an end to alleged discrimination against Negro workers in certain sections of the railroad industry.

"The recent decision of the committee . . . represents a decided step forward in achieving the principles that this country was founded upon," he said. "Any discriminatory practice against any group is contrary to our best interests and at this time directly aids the enemy. When such discrimination is practiced in employment policies it hampers production by depriving the nation of the use of available skills and manpower.

"The Congress of Industrial Organizations was founded upon the principle that the benefits of organized effort shall be secured to all workers, regardless of race, color, creed or nationality. Therefore, it is a source of gratification and encouragement to realize that our efforts implement the work of the Fair Employment Practices Committee."

I.C.C. Rejects Claim of Discrimination

Draws line between separation of races and equality of treatment

A requirement that negro passengers on a train be served meals in the Pullman space occupied by them, or in a dining car either in a section separated by curtains from that part of the car in which white persons are served or at a time when white persons are not being served, does not constitute unreasonable or unduly prejudicial or preferential treatment, according to the report of Division 3 of the Interstate Commerce Commission in its No. 28898 proceeding, involving a complaint on behalf of certain negro passengers traveling as a group from Jacksonville, Fla., to New York on an Atlantic Coast Line train.

Served Negroes in Their Pullman—The circumstances on which this complaint was based were detailed in *Railway Age* of August 21, 1943, page 322, where the proposed report of Examiner C. E. Stiles was reviewed. In brief, it concerned the meal service afforded a group of seamen traveling at their employer's expense. This group left Jacksonville in the morning and was entitled, under the employer's agreement with the road, to receive breakfast, lunch and dinner on the train. Acting on orders from his superior, as he interpreted them, the steward offered to serve breakfast in the Pullman space occupied by the group, but they refused to accept such service. The steward then wired for further instructions, and was authorized to serve the group in the diner after completion of regular meals, and lunch was so served. There was no opportunity to serve dinner to the group, as the diner was crowded until it was necessary to discontinue seating patrons in order to get the car cleared so it could be detached from the train. The group several times asked to be served dinner in the diner, but were informed it was impossible.

In his proposed report, the examiner found that the complaint was justified as to two of the three meals, breakfast and lunch, but that the road's rules will prevent "such unreasonable prejudice and preference" in the future. The division did not follow the examiner's finding in this respect, but found no unduly preferential or prejudicial treatment for any of the three meals, and so dismissed the complaint. Division 3 consists of Commissioners Miller, Patterson and Johnson.

Service in Pullman "First Class"—The spokesman for the group refused to have breakfast served in the Pullman, the

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division's report pointed out, on the ground that the men were first class passengers and were entitled to first class service. "They were in error in assuming that the service offered was not first class service," it declared, "as service in the passenger's seat is identical with that given in the diner, as to food, silverware, linen and waiter service." That the steward erred in his understanding that he was required to serve the group in the Pullman was conceded, but this did not constitute unreasonable or undue prejudice.

"Complainants insist that as first class passengers they had the right to eat in the dining car," said the division. "The applicable tariffs of defendant accord no such right. No statute is cited which accords such a right; nor are court decisions cited which hold that any such right was derived under common law. The Interstate Commerce Act does not accord the right, unless it does so indirectly, and no section of this act is cited as authority for the claim. The rules of the carrier, issued for the guidance of their employees, were not promulgated to the public, and were not a holding out to the public of rights on their part. Custom had not established rights different from those which defendant recognized. We conclude that there is no right on the part of an interstate passenger to dictate as to the seat or the car in which his meals shall be served, so long as the service accorded is equal, as to food, utensils, and waiter service, to that accorded other passengers."

Segregation Is Not Discrimination—The complaint was directed essentially at the separation of races, the division went on to say, and the report quotes from a brief of the complainants the following argument:

"The time is at hand for a bold declaration that segregation, in and of itself, must today be regarded as constituting unlawful discrimination, even in those cases where the negro, while segregated, is actually furnished with equal facilities and accommodations."

This, the division pointed out, is a social question, and not a question of inequality of treatment such as is prohibited by section 3 of the Interstate Commerce Act. Without comment the report quotes "enlightening" court decisions on this point, including one to the effect that "laws permitting, and even requiring, their separation in places where they are liable to be brought into contact do not necessarily imply the inferiority of either race to the other, and have been generally, if not universally, recognized as within the competency of the state legislatures in the exercise of their police power. . . . Legislation is powerless to eradicate racial instincts or to abolish distinctions based upon physical differences, and the attempt to do so can only result in accentuating the difficulties of he present situation."

Treated, as They Acted, as a Group—In connection with the failure to serve dinner to the group, the division pointed out that the claim was made that the men were unlawfully discriminated against because the steward failed and refused to notify them that they would receive service equal to that given white passengers if they would stand in line and wait their turn for individual attention. This point raised the question whether the road properly treated the men as a group, or should have dealt with them as individuals, the division found, and it went on to say that the evidence in the record supported the road's position that it was warranted in dealing with them as a group because they had elected to deal with it in that way through a representative who spoke for all. As the road had not notified other passengers to stand in line for service at dinner it was not obliged to notify the complainants.

Freight Car Loading

The total of carloadings for the week ended December 25 was not available at the time this issue of *Railway Age* went to press.

Loading of revenue freight for the week ended December 18 totaled 759,288 cars, and the summary for that week, as compiled by the Car Service Division, A.A.R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, December 18

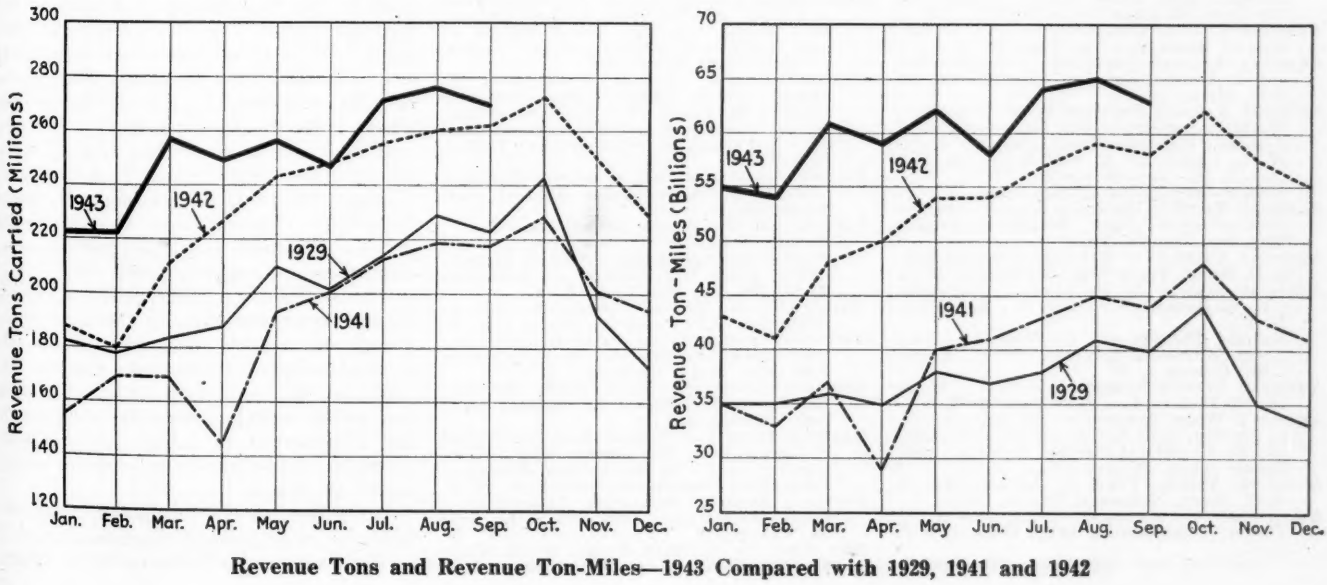
Districts	1943	1942	1941
Eastern	146,562	140,674	168,713
Allegheny	164,737	156,248	174,324
Pocahontas	55,311	52,169	52,294
Southern	116,310	117,069	125,599
Northwestern	84,671	82,460	96,815
Central Western	120,411	121,856	119,658
Southwestern	71,286	72,583	61,465
Total Western Districts	276,368	276,901	277,938
Total All Roads	759,288	743,061	798,868
Commodities			
Grain and grain products	48,564	47,688	41,431
Live stock	17,063	15,660	14,550
Coal	177,079	163,523	156,231
Coke	14,759	14,763	14,017
Forest products	41,737	41,498	43,170
Ore	12,357	13,855	13,752
Merchandise l.c.l.	98,719	87,191	150,066
Miscellaneous	349,010	358,883	365,651
December 18	759,288	743,061	798,868
December 11	823,211	744,183	807,225
December 4	862,759	759,731	833,375
November 27	820,082	743,464	866,180
November 20	882,287	836,762	799,386
Cumulative Total 51 Weeks	41,772,975	42,234,992	41,683,262

Holiday Mail and Express Traffic Exceeds That of 1942

Mail and express traffic handled by the railroads of the Middle West during the Christmas period this year exceeded that of last year by about 12 per cent, owing to greater patronage on the part of the public and the transfer of much military freight to express service to meet the emergencies of offensive combat. The inadequacy of facilities and of manpower handicapped the railroads in the movement of this heavy traffic but by the use of emergency facilities and members of the armed forces on furlough they were able to keep the traffic moving without serious delay.

Among the railroads that changed their methods of operation to meet the demands of mail and express traffic was the New York Central, which utilized platforms a mile from the LaSalle station in Chicago and thereby reduced to a minimum the interference in the terminal of head-end business with passenger train operation. By handling, for its trains and those of the Chicago, Rock Island & Pacific and the New York, Chicago & St. Louis, solid cars of mail at Clark and Taylor streets and express at Clark street and Roosevelt Road, this railroad was able to make two tracks in the station available for passenger train operation.

Both of these platforms were placed in operation during the first part of Decem-



Revenue Tons and Revenue Ton-Miles—1943 Compared with 1929, 1941 and 1942

ber. At the mail platform, bulk storage cars were loaded and were either handled in special trains or placed in trains departing from the terminal. Incoming bulk storage mail cars were also unloaded at this platform. On December 21, a peak of 26 cars of mail were loaded and 32 were unloaded here.

At the express platform, a similar arrangement was effective, express being handled in solid trains when the number of cars warranted special train operation. On December 22, 84 cars of express were unloaded and 74 were loaded on this platform, in addition to 15 loaded and 15 unloaded at facilities adjacent to the La-Salle street station.

Another railroad which altered its operations to meet the demands of holiday express traffic, was the Illinois Central, which transferred the handling of bulk express to its South Water Street freight station in Chicago. About 300 cars of express were loaded and unloaded at this station during the period from December 5 to 23.

Although the railroads suffered this year from manpower shortage because the draft and war industries took many of its mail and express handlers, the use of military service men from nearby camps at military pay was opposed by the unions and as a result the railroads were forced to solicit men on furlough to help out in the handling of express. Because the handling of mail is a government operation, the army ignored the union's demands and assigned men to the railroads for the handling of mail.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

ALLIED RAILWAY SUPPLY ASSOCIATION.—J. F. Gettrust, P. O. Box 5522, Chicago, Ill.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, G. M. & O. R. R., 105 W. Adams St., Chicago 3, Ill.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. P. Soebbing, Railway Exchange Bldg., St. Louis, Mo.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—B. D. Branch, C. R. R. of N. J., 143 Liberty St., New York 6, N. Y.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—Miss Elinor Heffern, Room 822, 310 South Michigan Ave., Chicago 4, Ill.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, C. I. & L. Ry., 836 S. Federal St., Chicago, Ill.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—Miss Elinor Heffern, Room 822, 310 South Michigan Ave., Chicago 4, Ill.

AMERICAN RAILWAY CAR INSTITUTE.—W. C. Tabbert, 19 Rector St., New York, N. Y.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—J. B. Lanctot, Canadian National Rys., St. Paul, Minn.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in cooperation with the Association of American Railroads, Engineering Division.—W. S. Lacher, 59 E. Van Buren St., Chicago 5, Ill. Annual meeting, March 14-16, 1944, Palmer House, Chicago, Ill.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—Page N. Price, Norfolk & Western Magazine, Roanoke, Va.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—J. H. Huntt, Tower Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—C. E. Davies, 29 W. 39th St., New York, N. Y.
Railroad Division.—E. L. Woodward, Railway Mechanical Engineer, 105 W. Adams St., Chicago 3, Ill.

AMERICAN TRANSIT ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York, N. Y.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1427 Eye St., N. W., Washington, D. C. Annual Meeting, April 26, 1944, Palmer House, Chicago, Ill.

ASSOCIATED TRAFFIC CLUBS OF AMERICA, INC.—A. S. Beery, Newsweek, Dayton, Ohio.

ASSOCIATION OF AMERICAN RAILROADS.—H. J. Forster, Transportation Bldg., Washington 6, D. C.
Operations and Maintenance Department, —Charles H. Buford, Vice-President, Transportation Bldg., Washington 6, D.C.
Operating-Transportation Division. — L. R. Knott, 59 E. Van Buren St., Chicago 5, Ill.
Operating Section.—J. C. Caviston, 30 Vesey St., New York 7, N. Y.
Transportation Section.—L. R. Knott, 59 E. Van Buren St., Chicago 5, Ill.
Fire Protection and Insurance Section.—W. F. Steffens, New York Central, Room 3317, 230 Park Avenue, New York, N. Y.
Freight Station Section.—L. R. Knott, 59 E. Van Buren St., Chicago 5, Ill.
Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York 7, N. Y.
Protective Section.—J. C. Caviston, 30 Vesey St., New York 7, N. Y.
Safety Section.—J. C. Caviston, 30 Vesey St., New York 7, N. Y.
Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York 7, N. Y.
Engineering Division.—W. S. Lacher, 59 E. Van Buren St., Chicago 5, Ill. Annual meeting, March 14-16, 1944, Palmer House, Chicago, Ill.
Construction and Maintenance Section.—W. S. Lacher, 59 E. Van Buren St., Chicago 5, Ill.
Electrical Section.—W. S. Lacher, 59 E. Van Buren St., Chicago 5, Ill.
Signal Section.—R. H. C. Balliet, 30 Vesey St., New York 7, N. Y.
Mechanical Division.—Arthur C. Browning, 59 E. Van Buren St., Chicago 5, Ill. Annual meeting, June, 1944, Chicago, Ill.
Electrical Section.—J. A. Andreucetti, 59 E. Van Buren St., Chicago 5, Ill.
Purchases and Stores Division.—W. J. Farrell (Executive Vice-Chairman), Transportation Bldg., Washington 6, D. C.
Freight Claim Division.—Lewis Pilcher, 59 E. Van Buren St., Chicago 5, Ill. Annual meeting, April 25-27, 1944, Netherland Plaza Hotel, Cincinnati, O.
Motor Transport Division.—George M. Campbell, Transportation Bldg., Washington 6, D. C.
Car Service Division.—E. W. Coughlin (Assistant to Chairman), Transportation Bldg., Washington 6, D. C.
Finance, Accounting, Taxation and Valuation Department.—E. H. Bunnell, Vice-President, Transportation Bldg., Washington 6, D. C.
Accounting Division.—E. R. Ford, Transportation Bldg., Washington 6, D. C.
Treasury Division.—E. R. Ford, Transportation Bldg., Washington 6, D. C.
Traffic Department.—A. F. Cleveland, Vice-President, Transportation Bldg., Washington 6, D. C.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—F. L. Johnson, Alton R. R., 340 W. Harrison St., Chicago, Ill.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—P. R. Austin, Johns-Manville Sales Corp., Merchandise Mart, Chicago, Ill.

CANADIAN RAILWAY CLUB.—C. R. Crook, 4415 Marcil Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT ASSOCIATION OF ST. LOUIS, MO.—J. J. Sheehan, 1101 Missouri Pacific Bldg., St. Louis, Mo. Regular meetings, third Tuesday of each month, except June, July and August, Hotel De Soto, St. Louis, Mo.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—F. H. Stremmel, 6536 Oxford Ave., Chicago, Ill.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Ralph J. Feddor, 2803 N. Campbell Ave., Chicago, Ill. Regular meetings, second Monday of each month, except June, July and August, La Salle Hotel, Chicago, Ill.

CENTRAL RAILWAY CLUB OF BUFFALO.—R. E. Mann, 1840-42 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month, except June, July and August, Hotel Statler, Buffalo, N. Y.

EASTERN ASSOCIATION OF CAR SERVICE OFFICERS.—H. J. Hawthorne, Union Railroad, East Pittsburgh, Pa.

EASTERN CAR FOREMAN'S ASSOCIATION.—W. P. Dizard, 30 Church St., New York 7, N. Y. Regular meetings, second Friday of January, March, April, May, October and November, 29 W. 39th St., New York, N. Y.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany 3, N. Y.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—Ben Smart, 7413 New Post Office Bldg., Washington, D. C.

NATIONAL ASSOCIATION OF SHIPPERS ADVISORY BOARDS.—C. J. Goodyear, 725 Reading Terminal, Philadelphia 5, Pa.

NATIONAL INDUSTRIAL TRAFFIC LEAGUE.—Edward F. Lacey, Suite 450, Munsey Bldg., Washington 4, D. C. Annual meeting, November, 1944, Hotel Pennsylvania, New York, N. Y.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. H. White, Room 1826, 208 S. La Salle St., Chicago, Ill.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Hotel Vendome, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York 7, N. Y. Regular meetings, third Thursday of each month, except June, July, August, September and December, 29 W. 39th St., New York, N. Y.

NORTHWEST CARMEN'S ASSOCIATION.—E. N. Myers, Minnesota Transfer Ry., St. Paul, Minn. Regular meetings, first Monday of each month, except June, July and August, Midway Club, 1931 University Ave., St. Paul, Minn.

PACIFIC RAILWAY CLUB.—William S. Wollner, P. O. Box A, Sausalito, Cal. Regular meetings, second Thursday of each alternate month, at Palace Hotel, San Francisco, Cal., and Hotel Hayward, Los Angeles, Cal.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton, First National Bank Bldg., Chicago, Ill.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 308 Keenan Bldg., Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRIC SUPPLY MANUFACTURERS' ASSOCIATION.—J. McC. Price, Allen-Bradley Company, 624 W. Adams St., Chicago 6, Ill.

RAILWAY FUEL AND TRAVELING ENGINEERS' ASSOCIATION.—T. Duff Smith, Room 811, Utilities Bldg., 327 S. La Salle St., Chicago, Ill.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 308 Keenan Bldg., Pittsburgh, Pa.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York 7, N. Y. Meets with Telegraph and Telephone Section of A. A. R.

RAILWAY TIE ASSOCIATION.—Roy M. Edmonds, 610 Shell Bldg., St. Louis 3, Mo. Annual meeting, May 16-17, 1944, Netherland Plaza Hotel, Cincinnati, O.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—Miss Elinor Heffern, Room 822, 310 S. Michigan Ave., Chicago 4, Ill.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York 7, N. Y. Meets with A. A. R. Signal Section.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—D. W. Brantley, C. of Ga., Savannah, Ga.

TORONTO RAILWAY CLUB.—D. M. George, P. O. Box 8, Terminal "A," Toronto, Ont. Regular meetings, fourth Monday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—Lewis Thomas, O. and C. Company, 59 E. Van Buren St., Chicago 5, Ill.

UNITED ASSOCIATIONS OF RAILROAD VETERANS.—Roy E. Collins, 112 Hatfield Place, Port Richmond, Staten Island, N. Y.

WESTERN RAILWAY CLUB.—E. E. Thulin, Suite 339, Hotel Sherman, Chicago, Ill. Regular meetings, third Monday of each month, except January, June, July, August and September, Hotel Sherman, Chicago, Ill.

Sues Four Rail Joint Reforming Companies

A civil suit against four corporations and their presidents, alleging violations of Sections 1 and 2 of the Sherman Act in the rail joint bar reforming industry, was filed by the Department of Justice in the Federal District Court at Chicago on December 21. Those named as defendents are: The Rail Joint Company, New York, and its president, Victor C. Armstrong, Short Hills, N. J.; Poor & Co., Chicago, and its president, Fred Poor, Lake Forest, Ill.; the Woodings-Verona Tool Company, Verona, Pa., and its president, Emanuel Woodings, Verona; and the McKenna Process Company, Joliet, Ill., and its president, George Langford, Joliet.

The suit seeks a cancellation of certain license agreements among the four companies and a public dedication of the unexpired patents. It also asks that the defendants be "restrained from instituting any action, including those for royalties or for infringement of patents, on the basis of rights claimed under any of the agreements or licenses."

According to the complaint, "the defendants have violated Sections 1 and 2 of the Sherman Act by unlawfully contract-

ing, combining and conspiring in restraint of interstate trade and commerce in the reforming of worn rail joint bars and by monopolizing, attempting to monopolize and combining and conspiring to monopolize the interstate trade and commerce in the reforming of worn rail joint bars." The allegations also contend that since 1928, the defendants "have unlawfully contracted, combined and conspired to fix and maintain non-competitive prices for the reforming of worn rail joint bars and to exclude others from the opportunity to engage freely and unrestrictedly in the reforming of worn bars whether of patented or unpatented design and whether reformed according to patented or unpatented methods and processes; and have monopolized the interstate trade and commerce in the reforming of worn rail joint bars."

"These offenses," the charges continue, "were effectuated by diverse means and methods involving agreement, among others, (a) to pool reforming patents through cross licensing among the defendants, (b) to use such pooled patents to harass non-licensed companies by threats of infringement suits, by attempting to induce railroads to refrain from having worn bars reformed by non-licensed companies and by forcing such non-licensed companies to discontinue the reforming of worn rail joint bars or to accept licenses to reform on terms dictated by the defendants."

In its summary of the patent background, the complaint contends that since the early days of railroads, "hundreds of patents have been issued on inventions pertaining to the design of rail joint bars. Patents on the standard type of bar, known as 'angle bar,' have long since expired and these bars are produced by numerous steel companies on a patent-free basis and sold to many railroads. The patents on may types of 'straight' bars have long since expired, but patents, some of which are unexpired, continue to be issued on such bars, though their validity has not been passed upon by the courts. Patents, some of which are unexpired, continue to be issued on 'crowned and bowed' bars although the validity of the patents have not been passed upon by the courts."

Operating Revenues and Operating Expenses of Class I Steam Railways

FOR THE MONTH OF OCTOBER, 1943 AND 1942

Item	United States		Eastern District		Southern District		Western District	
	1943	1942	1943	1942	1943	1942	1943	1942
Miles of road operated at close of month	229,168	230,014	56,200	56,675	43,401	43,598	129,567	129,868
Revenues:								
Freight	$594,559,609	$587,611,572	$229,518,965	$227,205,151	$107,708,241	$109,305,736	$257,332,403	$251,100,685
Passenger	144,885,130	108,322,441	58,252,177	46,113,111	28,121,126	21,053,610	58,511,827	41,155,720
Mail	11,313,571	9,723,693	3,823,402	3,540,339	1,995,189	1,718,756	5,494,980	4,464,598
Express	11,276,650	10,978,130	4,437,830	4,535,908	1,354,421	1,616,139	5,484,399	4,826,083
All other operating revenues	34,247,051	28,948,312	14,135,830	12,435,388	4,675,747	3,875,200	15,435,474	12,637,724
Railway operating revenues	796,282,011	745,584,148	310,168,204	293,829,897	143,854,724	137,569,441	342,259,083	314,184,810
Expenses:								
Maintenance of way and structures	102,012,582	75,930,228	40,130,937	30,086,541	15,693,094	13,707,800	46,188,551	32,135,887
Maintenance of equipment	129,260,231	106,980,178	55,105,627	45,775,085	22,898,546	20,638,063	51,256,058	40,567,030
Traffic	11,212,970	9,903,789	4,044,216	3,614,697	2,030,082	1,879,389	5,138,672	4,409,703
Transportation—Rail line	244,591,244	202,402,417	108,684,806	89,098,168	39,317,279	34,024,487	96,589,259	79,279,762
Transportation—Water line	372	4,505	.....	.....	.....	.....	372	4,505
Miscellaneous operations	9,784,205	7,661,727	3,348,083	2,802,000	1,445,726	1,179,979	4,990,396	3,679,748
General	16,708,811	13,547,510	6,641,808	5,384,088	3,110,442	2,692,891	6,956,561	5,470,531
Railway operating expenses	**513,570,515	416,430,354	217,955,477	176,760,579	84,495,169	74,122,609	211,119,869	165,547,166
Net revenue from railway operations	282,711,496	329,153,794	92,212,727	117,069,318	59,359,555	63,446,832	131,139,214	148,637,644
Railway tax accruals	154,061,886	127,649,195	50,992,175	47,649,680	37,507,482	30,216,679	65,562,229	49,782,836
Railway operating income	128,649,610	201,504,599	41,220,552	69,419,638	21,852,073	33,230,153	65,576,985	98,854,808
Equipment rents—Dr. balance	12,207,823	13,156,803	4,828,508	5,277,652	328,031	603,582	7,051,284	7,275,569
Joint facility rent—Dr. balance	3,357,936	3,568,001	1,602,237	1,666,017	394,411	402,295	1,361,288	1,499,689
Net railway operating income	113,083,851	184,779,795	34,789,807	62,475,969	21,129,631	32,224,276	57,164,413	90,079,550
Ratio of expenses to revenues (per cent)	64.5	55.9	70.3	60.2	58.7	53.9	61.7	52.7
Depreciation—Way and structures	8,772,652	5,475,453	3,753,614	3,534,445	1,483,950	489,774	3,535,088	1,451,234
Deferred maintenance—Way and structures	456,967	798,761	80,074	33,361	d 12,751	.....	389,644	765,400
Amortization of Defense projects—Road	1,095,324	490,990	415,514	172,632	231,119	75,611	448,691	242,747
Depreciation—Equipment	17,672,633	17,639,004	7,577,187	7,735,176	3,559,546	3,447,029	6,535,900	6,456,799
Amortization of Defense projects—Equipment	12,513,602	8,138,157	4,376,005	2,678,658	2,648,759	2,300,081	5,488,838	3,159,418
Deferred maintenance—Equipment	77,500	608,159	5,333	.....	d 1,964	.....	74,131	608,159
Major repairs—Equipment	150,000	.....	.....	.....	.....	.....	150,000	.....
Pay roll taxes	19,747,797	15,362,444	8,760,872	6,554,239	3,057,733	2,694,950	7,929,192	6,113,255
Federal income taxes*	108,529,540	84,847,935	30,566,444	29,848,774	29,535,516	21,661,068	48,427,580	33,338,093
All other taxes	25,784,549	27,438,816	11,664,859	11,246,667	4,914,233	5,860,661	9,205,457	10,331,488
FOR TEN MONTHS ENDED WITH OCTOBER, 1943 AND 1942								
Miles of road operated at close of month	229,292	231,047	56,304	56,744	43,437	43,789	129,551	130,514
Revenues:								
Freight	$5,644,654,447	$4,878,062,021	$2,212,187,563	$1,981,996,489	$1,076,300,710	$946,900,716	$2,356,166,174	$1,949,164,816
Passenger	1,359,398,822	800,974,492	550,652,963	374,587,993	277,388,073	154,410,885	531,357,786	271,975,614
Mail	99,780,114	88,503,273	34,622,064	32,227,666	18,122,937	15,833,125	47,035,113	40,442,482
Express	104,803,092	75,381,537	36,726,178	27,743,721	14,859,233	12,164,970	53,217,681	35,472,846
All other operating revenues	302,271,078	230,202,213	132,219,692	106,374,373	39,857,726	29,694,034	130,193,660	94,133,906
Railway operating revenues	7,510,907,553	6,073,123,636	2,966,408,460	2,522,930,242	1,426,528,679	1,159,003,730	3,117,970,414	2,391,189,664
Expenses:								
Maintenance of way and structures	876,871,272	652,290,346	338,000,005	264,653,888	150,522,438	113,168,443	388,348,829	274,468,015
Maintenance of equipment	1,158,692,719	995,349,360	494,027,669	443,546,097	216,287,199	190,799,109	448,377,851	361,004,154
Traffic	105,004,755	97,126,469	38,218,203	35,270,498	20,079,605	19,053,137	46,706,947	42,802,834
Transportation—Rail line	2,180,269,866	1,828,465,938	980,299,001	830,603,231	367,968,378	310,691,172	832,002,487	687,171,535
Transportation—Water line	13,257	26,051	.....	.....	.....	.....	13,257	26,051
Miscellaneous operations	86,611,181	59,872,734	31,064,606	23,751,396	13,878,106	9,576,117	41,668,469	26,545,221
General	148,626,742	130,036,852	60,004,099	52,255,953	29,299,123	25,098,860	59,323,520	52,682,039
Railway operating expenses	†4,556,089,792	3,763,167,750	1,941,613,583	1,650,081,063	798,034,849	668,386,838	1,816,441,360	1,444,699,849
Net revenue from railway operations	2,954,817,761	2,309,955,886	1,024,794,877	872,849,179	628,493,830	490,616,892	1,301,529,054	946,489,815
Railway tax accruals	1,606,604,616	1,000,203,529	530,010,337	379,735,889	384,629,288	256,445,919	691,964,991	364,021,721
Railway operating income	1,348,213,145	1,309,752,357	494,784,540	493,113,290	243,864,542	234,170,973	609,564,063	582,468,094
Equipment rents—Dr. balance	125,836,635	116,587,332	51,808,158	55,554,330	7,653,600	6,466,674	66,374,877	54,566,328
Joint facility rent—Dr. balance	33,966,505	32,084,254	17,110,103	16,846,111	4,099,092	3,540,424	12,757,310	11,697,719
Net railway operating income	1,188,410,005	1,161,080,771	425,866,279	420,712,849	232,111,850	224,163,875	530,431,876	516,204,047
Ratio of expenses to revenues (per cent)	60.7	62.0	65.5	65.4	55.9	57.7	58.3	60.4
Depreciation—Way and structures	87,922,926	33,440,160	37,766,285	20,776,933	14,744,912	4,904,881	35,411,729	7,758,346
Deferred maintenance—Way and structures	1,146,466	1,039,844	54,379	133,444	d 65,775	.....	1,157,862	906,400
Amortization of Defense projects—Road	8,241,591	3,149,462	2,854,912	894,316	1,507,169	423,020	3,879,510	1,832,126
Depreciation—Equipment	175,516,237	172,927,271	74,650,293	74,246,126	35,901,220	34,736,561	64,964,724	63,944,584
Amortization of Defense projects—Equipment	106,103,741	62,561,460	36,900,242	20,597,787	24,653,074	16,932,615	44,550,425	25,031,058
Deferred maintenance—Equipment	d 68,531	608,159	21,335	.....	d 53,242	.....	d 36,624	608,159
Major repairs—Equipment	1,450,000	.....	.....	.....	.....	.....	1,450,000	.....
Pay roll taxes	169,690,432	140,743,862	72,883,549	61,480,807	29,114,073	24,799,429	67,692,810	54,463,626
Federal income taxes*	1,180,070,069	635,972,318	344,046,101	219,989,246	305,065,203	186,326,795	530,958,765	227,656,277
All other taxes	256,844,115	225,487,349	113,080,687	98,265,836	50,450,012	45,319,695	93,313,416	81,901,818

* Includes income tax, surtax, and excess-profits tax.
d Decrease, deficit, or other reverse items.
** Includes $38,970,595 accrued in anticipation of major wage awards.
† Includes $103,720,575 accrued in anticipation of major wage awards.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

Supply Trade

Norman V. Arntzen, a member of the sales and engineering staff of the Pacific Coast division of **Hubbard & Company,** Pittsburgh, Pa., has been appointed district sales manager of the Southwestern district, with headquarters at Los Angeles, Cal.

J. P. Krumech, traffic manager of the American Car & Foundry Co., has been elected chairman of the board of governors of the Traffic Club of New York, and **R. J. Newberry,** general traffic manager of the Johns-Manville Corporation, has been elected vice-chairman.

Ralph L. Wilson, former chief of the construction steels section of the metallurgical and conservation branch, steel division, of the War Production Board, has been appointed chief metallurgical engineer of the **Timken Roller Bearing Company.**

Robert W. Dierker, manager of sales of the **Gary Screw & Bolt Division** of the Pittsburgh Screw & Bolt Corporation, Chicago, has been promoted to general manager of sales. **Gerald J. Garvey,** assistant manager of sales, has been made manager of railroad sales and Bernard C. Ruthy, has been appointed assistant manager of sales.

OBITUARY

William G. Irwin, chairman of the board of the Cummins Engine Company, died December 14.

Hugh J. Homewood, treasurer of the Gisholt Machine Company, Madison, Wis., died November 7. He was 49 years of age.

L. P. Bowen, representative of the Railway department of the Dearborn Chemical Company, Chicago, died December 17.

John Maxwell Gillespie, vice-chairman of the board of directors of the Lockhart Iron & Steel Co., died December 6. Mr. Gillespie had been associated with the Lockhart company for 47 years.

TRADE PUBLICATIONS

TABLE NAPERY.—"Table Napery — Its Importance, Its Use and Care" has been published by Rosemary Sales, a division of the Simmons Company, 40 Worth Street, New York 13, in the interests of hotels, restaurants, railroads, hospitals, etc. The booklet shows various table set-ups using Rosemary Tablecraft and gives specific recommendations for the removal of various types of stains, as well as for the preparation of tablecloths and napkins for laundering.

DESIGN MANUAL FOR TIMBER CONNECTOR CONSTRUCTION.—A 1943 edition of the T.E. C.O. Design Manual for Timber Connector Construction has been published by the Timber Engineering Company, Washington, D. C., in which the data presented are drawn in accordance with the recent W.P.B. National Emergency Specifications for the Design, Fabrication, and Erection of Stress Grade Lumber and Its Fastenings, which became mandatory on November 1.

This 40-page manual offers complete design information on the use of Teco connectors. It includes data on load values, spacings, etc. The material is presented in chart form for ready use of architects and engineers and includes such additional information as recommended cambers for standard trusses, approximate weights of various timber connectored roof trusses and a table of dimensional properties of American standard-sized lumber.

Abandonments

BALTIMORE & OHIO.—Division 4 of the Interstate Commerce Commission has authorized this company and the Buffalo & Susquehanna, which it controls through stock ownership, to abandon operation of and to abandon, respectively, a line from B. & S. Junction, Pa., to DuBois, 4.94 miles, authority having been granted to operate over an alternate line of another subsidiary, the Buffalo, Rochester & Pittsburgh, between these points.

Construction

CANADIAN NATIONAL.—This road has awarded a contract, amounting to more than $20,000 to W. F. McDougall & Co., Calgary, Alta., for the construction of a one-story and basement building in the Calder Yard, Edmonton, Alta. The building, which will house the mechanical and yard office staffs, will measure 36 ft. by 97 ft.

CANADIAN NATIONAL.—This road has completed plans for the construction of a high level, pocket type ore-loading dock at Port Arthur, Ont., and a spur track from the railway's main line near Atikokan, Ont., to the site of the Steep Rock Iron Mines, Ltd., to provide facilities for the movement and handling of ore developed by the mine. The capital cost, which will be between $2,000,000 and $3,000,000, will be borne by the Canadian government under the War Measures and War Appropriation Acts, but the construction will be under the direction of the Canadian National.

LOUISVILLE & NASHVILLE.—This company has applied to the Interstate Commerce Commission for authority to construct a 2.6-mile spur westward from Romney, Ky., to give access to an undeveloped coal field.

NEW YORK, NEW HAVEN & HARTFORD.—This railroad has authorized the construction of battery charging facilities at its Dover street yard, Boston, Mass., at estimated cost of $48,000. The railroad has also awarded contracts for the construction of fueling and sanding facilities, inspection pit, etc., at Mayrbrook, N. Y., at estimated cost of $27,000, to the Foskett & Bishop Co., of New Haven, Conn., and the George F. Collins Company, of New York.

RICHMOND, FREDERICKSBURG & POTOMAC.—This railroad has awarded a contract for the construction of additions to the machine shop, store house and pipe shop at its Acca locomotive terminal, Richmond, Va., at estimated cost of $75,000, to the J. K. Perrin Construction Company, of Richmond.

Equipment and Supplies

Frisco Budget Provides $5,845,429 for Improvements

The budget of the St. Louis-San Francisco provides for the expenditure of $5,845,429 for improvements in 1944. Of this amount $3,888,356 is for roadway expenditures, including 140 miles of new rails, the renewal of trestle bridges, the widening of cuts and fills, new signals and interlockings. More than two million dollars of the latter amount is for rails and track accessories.

A total of $1,867,635 is for mechanical improvements, including $1,522,572 for rebuilding 600 hopper cars in the company's shops, $306,507 for improvements to locomotives and $21,958 for equipping five first-class passenger cars with 31 bucket-type seats per car.

The budget also provides for the purchase of new machinery for the company's repair shops at Springfield, Mo. and 50 flange oilers. Spring switches will be installed at several points.

FREIGHT CARS

The SPOKANE, PORTLAND & SEATTLE has asked for bids on seven wooden bunk cars.

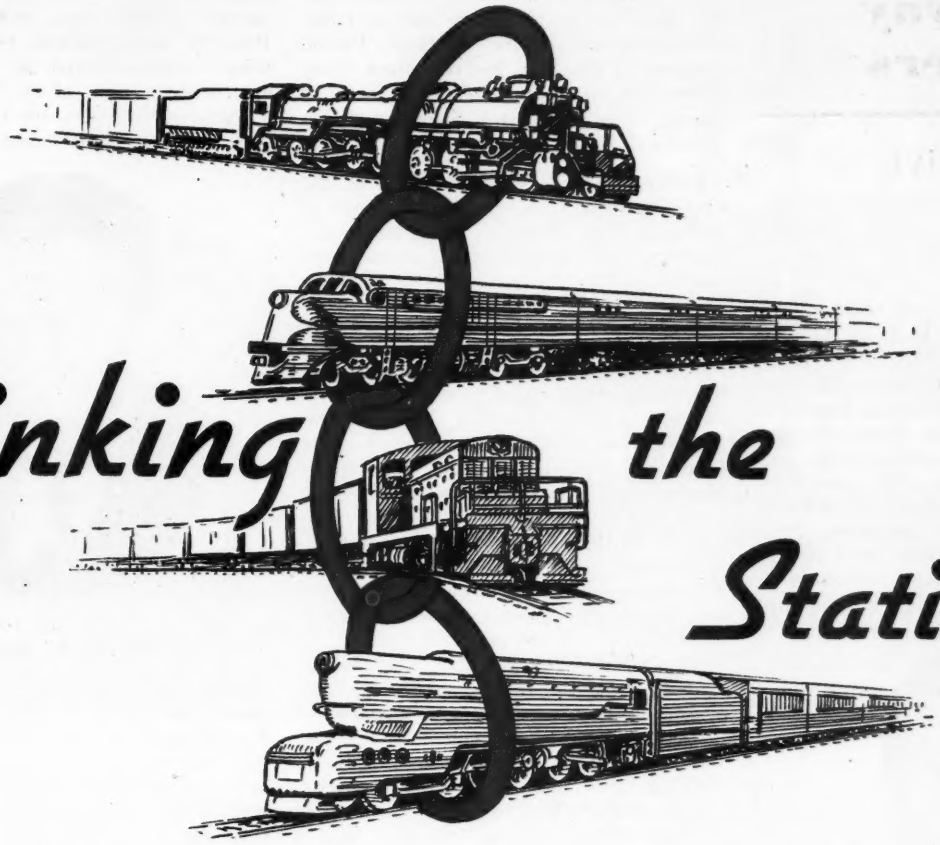
Financial

ALTON.—*Equipment Trust Issue.*—The Alton has asked for bids, subject to the approval of the Interstate Commerce Commission, for the purchase of a 1944 equipment trust issue of $3,920,000, covering the following equipment: 750 hopper cars, 500 box cars and 250 gondola cars. Total cost of the equipment is estimated at $4,900,000 of which not less than one-fifth will be paid by the railroad.

BALTIMORE & OHIO.—*Operation over B. R. & P.*—Division 4 of the Interstate Commerce Commission has authorized the Buffalo & Susquehanna to operate between B. & S. Junction, Pa., and DuBois, 5.61 miles, under trackage rights over the Buffalo, Rochester & Pittsburgh. Both companies are controlled by the B. & O. through stock ownership, and the arrangement will make possible abandonment of the B. & S. line between the points named, which also has been authorized by the division.

THE LONGEST TUNNEL on the Canadian National Railways is situated in the heart of the metropolis, connecting Montreal with the town of Mount Royal, after passing under the historic local mountain. This tunnel is 16,545 ft. in length, or 3.1 miles.

News Department continued on next left-hand page



Linking the Statistics

The statistical survey, appearing on the editorial pages of this issue, reviews the year's accomplishment of record freight tonnage and passenger revenue miles, despite a constantly diminishing pool of power and rolling stock.

But statistics are cold and must be linked to something more tangible to reveal the story behind the picture. For the achievement is not accidental, but assuredly the fruit of foresight, research, careful planning.

Linking the Part of Modern Air Brakes to the Story

The "AB" Freight Brake — answers to the practicable operation of long freight trains.

The "8-ET" Locomotive Brake — contributes its smooth control to achieve full utility of massive power units.

The "6-DS" Switcher Brake — confers a flexibility that promotes fast yard gathering and distribution.

The "D-22" Passenger Brake — answers with its traditional safety on fast schedules.

WESTINGHOUSE AIR BRAKE CO.

WILMERDING, PENNSYLVANIA

Railway Officers

EXECUTIVE

John R. Bolen has been named assistant to vice-president of the Georgia, Southern & Florida, with headquarters at Valdosta, Ga.

Joseph H. Huntt, secretary-treasurer of the American Short Line Railroad Association with headquarters at Washington, D. C., resigned effective January 1 to become president and general manager of the East Erie Commercial, Erie, Pa. Mr. Huntt, who had been with the Short Line Association continuously since October, 1931, was born October 17, 1897, at Laurel, Md. He entered railroad service in September, 1916, as a clerk with the Southern at Washington, being transferred shortly thereafter to Charlotte, N. C., where he remained until

Joseph H. Huntt

April, 1917. Then after a year out of railroad service, Mr. Huntt entered the employ of the United States Railroad Administration in April, 1918, serving until February, 1925, on assignments in the divisions of operations and finance, and in the controller's office as office accountant in charge of depreciation, fire loss, and maintenance of equipment accounts. From February, 1925, until the latter part of 1926, Mr. Huntt was with the Department of Justice, and from the latter date until June, 1930, he was in consultant work for the Association and individual short lines. His work for the Association at that time was in connection with the Railway Mail Pay Case. He was general manager of the Aransas Harbor Terminal, Aransas Pass, Tex., from June, 1930, until January, 1931; and in October of the latter year, as noted above, he began his 12-year period of service with the Association. He was assistant to the president from October 24, 1935, until November 1, 1939, when he was elected secretary-treasurer.

Colonel T. H. Kruttschnitt of San Mateo, Calif., who retired from military service September 30 last, has been named vice-president and manager of the Tonopah & Goldfield, with headquarters at Tonopah, Nev. Colonel Kruttschnitt is a son of the late Julius Kruttschnitt, who was for many years chairman of the Southern Pacific Company. Prior to his retirement from military service, the colonel had been in charge of quartermaster depots at Camp Haan and Fort Lewis.

Culver White, special counsel of the Gulf, Mobile & Ohio, with headquarters at Jackson, Tenn., has been promoted to assistant to the president, with the same headquarters.

Gustav Metzman, vice-president and general manager of the New York Central System (Big Four), with headquarters at Cincinnati, Ohio, has been promoted to vice-president of the New York Central System, West of Buffalo, including the Big Four, the Michigan Central, the Indiana Harbor Belt, and the Chicago River & Indiana, with headquarters at Chicago, succeeding **W. F. Schaff,** who has retired. A photograph ond biographical sketch on Mr. Metzman were published in the *Railway Age* of December 4 at the time of his promotion to his last position.

Mr. Schaff entered railway service on April 1, 1894, as a clerk of the Big Four at Springfield, Ohio, later being transferred to Columbus, Ohio. In September, 1895, he was promoted to yardmaster at Louisville, Ky., and after nine years in this capacity was further advanced to general yardmaster at Indianapolis, Ind. In 1906 Mr. Schaff was promoted to trainmaster, with headquarters at Indianapolis, later being transferred to Galion, Ohio. In June, 1909, he was transferred to the Lake Shore & Michigan Southern (now part of the N. Y. C.), where he served successively as assistant superintendent at Youngstown, Ohio, Buffalo, N. Y., and Cleveland, and superintendent at Detroit, Mich. In March, 1915, he was appointed superintendent on the New York Central at Cleveland, and after two years in this capacity he was further promoted to general superintendent of the Lines West of Buffalo, with headquarters at Chicago. In March, 1926, he was made assistant general manager of the Lines West of Buffalo, with headquarters at Cleveland, and in 1931 his jurisdiction was extended over the Ohio Central Lines. On January 1, 1932, Mr. Schaff was promoted to general manager at Cleveland and on September 1, 1933, he was given the title of vice-president and general manager. In October, 1937, he was promoted to the position he held at the time of his retirement.

OPERATING

T. W. Fatherson. engineer on construction of the Tremont & Gulf, with headquarters at Winnfield, La., has been promoted to general superintendent with the same headquarters.

Berlin V. Bodie, whose promotion to superintendent of the Eastern division of the Alton, with headquarters at Bloomington, Ill., was reported in the *Railway Age* of December 11, was born at Pittsburgh, Pa., and received his higher education at Johns Hopkins University. He entered railway service as a clerk of the car service department of the Baltimore & Ohio at Baltimore, Md., in 1928, during school vacation. From June, 1930, to February, 1934, he was employed by various electrical companies, and in May, 1934, he entered the service of the Pennsylvania as a signalman's helper on the New York-Washington electrification project. In

Berlin V. Bodie

August, 1935, Mr. Bodie was appointed a rodman of the Alton, with headquarters at Bloomington, and on January 1, 1939, he was advanced to instrumentman, with the same headquarters. In July of the same year he was transferred to the office of the chief engineer at Chicago, and in August, 1940, he was promoted to assistant trainmaster of the Eastern division. On January 1, 1942, he was advanced to trainmaster of the Eastern division, holding that position until his new appointment, effective December 1.

A. M. Shea has been appointed superintendent, St. Lawrence division of the Canadian National, succeeding **Henry Martin Gain,** who has retired under pension regulations. Mr. Shea was born and educated at Montreal, Que., and entered railroad service there in the transportation department

A. M. Shea

of the Grand Trunk, when he became brakeman in June, 1911. Five years later he was promoted to the position of conductor, and in January, 1942, was named trainmaster. In June of that year Mr. Shea became assistant superintendent, St. Lawrence division, from which position he is now ap-

News Department continued on next left-hand page

Will Insure Greater Achievements

BY moving 638 billion ton-miles of freight and recording 54 billion passenger-miles in a year the American railroads have established an all-time record.

Wear-resisting parts made from HUNT-SPILLER *Air Furnace* GUN IRON have played a big part in this achievement.

Complete application of all the HSGI parts listed below will reduce repairs in the back shop and roundhouse and increase locomotive availability—"Keep 'em rolling to Victory this year."

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pointed superintendent. This division includes about 900 track miles extending from Portland, Me., to Brockville, Ont.

Mr. Gain, a native of Lindsay, Ont., set out on a railway career as messenger with the Canadian Express Company. After working on various train routes handling express traffic, he was promoted in June, 1904, to route agent at Richmond, Que. In 1910 he was transferred to the transportation department of the Grand Trunk at Montreal as a conductor, after serving as trainmaster at that location; Belleville, Ont.; and Richmond; until May, 1924, when he was named assistant superintendent in the operating department. He returned to Montreal in this latter capacity in December, 1927, and was appointed superintendent, St. Lawrence division, in February, 1939. This position he maintained until his recent retirement.

George E. Johnson, assistant to the general manager of the Denver & Rio Grande Western, with headquarters at Denver, Colo., has retired after 25 years service with that road.

F. W. West, terminal trainmaster of the Alton, with headquarters at Venice, Ill., has been advanced to trainmaster of the Eastern division, with headquarters at Bloomington, Ill., succeeding **B. V. Bodie,** whose promotion to superintendent of the Eastern division was reported in the *Railway Age* of December 11. **R. E. Mitchell,** yardmaster of the Alton's yard in the Northern Illinois Coal Corporation mine at Wilmington, Ill., has been reported to terminal trainmaster, with headquarters at Venice, replacing Mr. West.

TRAFFIC

Laurence E. Oliphant, vice-chairman of the Central Freight Association, with headquarters at Chicago, has retired effective December 31.

J. C. Restall, traveling freight agent of the Canadian National, with headquarters at Memphis, Tenn., has been promoted to general agent, freight department, with the same headquarters, succeeding **W. T. Page,** who has retired.

William E. Carbone, general Western passenger agent of the Delaware, Lackawanna & Western, with headquarters at Chicago, has been promoted to general passenger agent, with headquarters at New York, succeeding **John L. Homer,** who has retired after 51 years' service.

Howard E. Simpson, assistant passenger traffic manager of the Baltimore & Ohio, with headquarters at Baltimore, Md., has been advanced to the position of general passenger traffic manager of that road, succeeding **Walter B. Calloway,** who retired on December 31 after heading the passenger traffic department for 26 years. Mr. Simpson, who was born in Jersey City, N. J., on March 15, 1896, started his railroad career in the service of the Central of New Jersey in 1912 as clerk. He acted in several clerical positions in the ticket stock, billing, filing, advertising, and rate departments. After serving in the United States Navy from November, 1917, to May, 1919, Mr. Simpson returned to the Central of New Jersey as purser on its steamer Sandy Hook, subsequently becoming rate clerk in 1920, and city passenger agent at New York two years later. In 1925 he was appointed

Howard E. Simpson

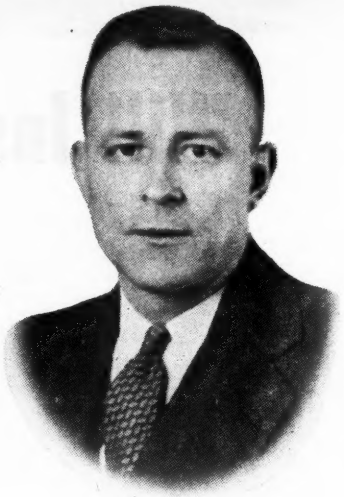
advertising agent, and then district passenger agent at Newark, N. J., being named general eastern passenger agent at New York in 1926, and assistant general passenger agent in July of the same year. He entered the service of the Baltimore & Ohio in 1931 as general eastern passenger agent at New York, and was promoted to assistant to general passenger traffic manager at Baltimore in 1936. In 1941 he became assistant passenger traffic manager, serving in this capacity until his present appointment as general passenger traffic manager at Baltimore.

Mr. Calloway, born at Harrison, Ohio, on December 28, 1873, began railroading in 1891 as a messenger in the freight claim department of the Cleveland, Cincinnati, Chicago & St. Louis. He joined the Cincinnati,

Walter B. Calloway

Hamilton & Dayton (now Baltimore & Ohio) in 1898, advancing through the grades of chief rate clerk, advertising agent and assistant general passenger agent. He became general passenger agent in charge of passenger traffic of the Cincinnati, Hamilton & Dayton and affiliated lines, in 1905. In 1911 when the Cincinnati, Hamilton & Dayton was absorbed by the Baltimore & Ohio, Mr. Calloway first became affiliated with the Baltimore & Ohio as assistant general passenger agent of its southwest lines, at Cincinnati, becoming general passenger agent in the same year. He was transferred to Baltimore in 1916 as general passenger agent, becoming passenger traffic manager in 1918, and general passenger traffic manager in January, 1933. This latter position Mr. Calloway held until his retirement on December 31, 1943.

T. K. Lynch, whose appointment as general passenger agent of the Atlantic Coast Line was announced in the *Railway Age* of December 11, was born at Oxford, N. C., in 1903. He received his higher education at the University of North Carolina, and entered the service of the Atlantic Coast Line in October, 1922, as a file clerk in the freight traffic department. In July, 1924, he became clerk, and in October, 1927, was named rate clerk in the same department. He was transferred to Kingsport, Tenn., as commercial agent in July,



T. K. Lynch

1936, being appointed assistant to general freight agent three years later. In September, 1940, Mr. Lynch became assistant general freight agent. He was shifted to the passenger traffic department in February, 1943, when he was appointed as assistant general passenger agent, and served in this position until his recent promotion to general passenger agent with headquarters at Wilmington, N. C.

ENGINEERING & SIGNALING

R. H. Emmerson has been appointed engineer, right of way, Atlantic region, of the Canadian National, succeeding **A. S. Gunn,** whose appointment as principal assistant engineer was announced in the *Railway Age* of December 18.

Prentice L. Graves, whose appointment as district engineer on the Chesapeake & Ohio, with headquarters at Huntington, W. Va., was reported in the November 20 issue, was born on August 13, 1895, at Austin, Tex. Mr. Graves obtained his

News Department continued on next left-hand page

Reliance HY-CROME Spring Washers

A SMALL FIGURE IN RAILROAD STATISTICS

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higher education at the University of Texas, and entered railway service in June, 1916, as a rodman with the Houston & Texas Central (now part of the Southern Pacific). In September of the same year, he went with the Gulf, Colorado & Santa Fe as a

Prentice L. Graves

computer at Galveston, Tex., leaving this company several months later to become a draftsman with the Galveston, Houston & Henderson. In October, 1917, he entered military service with the 23rd Regiment of Engineers and served in France until September, 1919. He then entered the service of the Chicago, Burlington & Quincy as a computer at Chicago, serving with this company until October, 1920, when he went with the C. & O. as a draftsman on new line construction. In January, 1922, Mr. Graves entered the service of the city of Richmond, Va., returning to the C. & O. in March, 1923, as a resident engineer on construction work. He was serving in this capacity at the time of his recent promotion to the position of district engineer, which was effective on November 1.

Henry E. Smith, whose appointment as district engineer on the Canadian National,

Henry E. Smith

with headquarters at Toronto, Ont., was reported in the November 27 issue, was born on May 4, 1894, at Ottawa, Ont. He obtained his higher education at McGill University, graduating with a Bachelor of Science degree in civil engineering in 1917. He entered railway service on May 1 of that year with the Grand Trunk (now part of the Canadian National), but in the following year he entered military service and served overseas with the Canadian Siege Artillery. On June 1, 1919, he returned to the Grand Trunk as assistant engineer at Montreal, Que., being advanced to division engineer at Richmond, Que., on February 28, 1928. On November 1, 1931, he became assistant division engineer at Allandale, Ont., and on August 25, 1937, he was appointed division engineer at Capreol, Ont., being transferred to Belleville, Ont., on February 1, 1940. In the following year, he was assigned to the chief engineer's office at Toronto as assistant engineer, and on March 17, 1943, he became acting district engineer of the Ontario district with the same headquarters. His appointment as district engineer became effective on November 1.

J. A. Lippitt, architectural draftsman of the Atchison, Topeka & Santa Fe, Eastern Lines, with headquarters at Topeka, Kans., has been promoted to architect, Eastern Lines, with the same headquarters, succeeding **G. C. Lancaster,** whose death was reported in the December 25 issue.

C. F. Edwards, assistant division engineer on the Chesapeake & Ohio, with headquarters at Columbus, Ohio, has been promoted to division engineer with the same headquarters, to succeed **W. L. Roller,** deceased. **M. J. Hubbard** has been appointed assistant division engineer at Columbus to succeed Mr. Edwards.

MECHANICAL

Howard Roelofs has been appointed assistant superintendent of motive power and equipment of the Alaska Railroad, with headquarters at Anchorage, Alaska.

Adam McGregor, locomotive inspector of the Canadian National at Winnipeg, Man., has been appointed mechanical inspector at Montreal, Que. Mr. McGregor succeeds **John Jackson Miller,** whose appointment as chief electrical supervisor of the Montreal terminals was announced in the *Railway Age* of October 9.

SPECIAL

J. W. Thompson has been appointed assistant chief of personnel of the Seaboard Air Line, with headquarters at Norfolk, Va., succeeding **J. R. Thorne,** who has been furloughed to serve with the 722nd Railway Battalion, United States Army.

Walter S. Jackson, advertising manager of the Chesapeake & Ohio, and the Pere Marquette, with headquarters at Cleveland, Ohio, has also been appointed advertising manager of the New York, Chicago & St. Louis (Nickel Plate), a newly-created position.

T. C. Montgomery, whose promotion to manager of personnel of the Southern Pacific Lines in Texas and Louisiana, with headquarters as before at Houston, Tex., was reported in the *Railway Age* of December 11, was born at Hempstead, Tex., on June 13, 1884, and entered railway service on June 1, 1902, as a yard clerk of the Southern Pacific Lines in Texas and

T. C. Montgomery

Louisiana. After holding various clerical positions and serving as a switchman, brakeman and conductor on this railroad, he was promoted to trainmaster of the Houston division, now the San Antonio division, with headquarters at Yoakum, Tex., in 1927. In January, 1930, he was transferred to the Victoria division with headquarters at Victoria, Tex., and on July 16, 1931, he was promoted to supervisor of wages in the general office at Houston. In May, 1937, Mr. Montgomery was advanced to assistant general manager, with the same headquarters, the position he held at the time of his new appointment, effective December 1.

OBITUARY

John F. Morris, who retired in 1937 as general auditor of the Denver & Rio Grande Western, with headquarters at Denver, Colo., died in a Salt Lake (Utah) hospital on December 4.

John B. Hampton, paymaster of the Louisville & Nashville, with headquarters at Louisville, Ky., died recently in the Union Station at Nashville, Tenn., when he suffered a heart attack while en route to Chattanooga, Tenn.

PENICILLIN PRIORITY.—Upon instruction from the Army's Air Transport Command, the air express division of the Railway Express Agency is according the drug penicillin highest priority rating for air transportation. The utmost of speed in shipment of the drug occasionally released for civilian use has been arranged for, with all regularly scheduled airline flights to be made available. Where the source of supply is not directly on the air route, fast passenger trains are to be used to connect with the first plane departure from the nearest airport. Where the destination is beyond an airport, quick connecting movement similarly will be afforded by fast passenger trains.